Carrier Tells Why High Humidity Condition Is What Summer Systems Should Prevent

(Concluded from Page 1, Column 4)
aspects of air conditioning, he pointed out, they are welcoming its development because it is making two important contributions to human health and comfort, these being a means of extracting harmful bacteria from the air and a means of decreasing humidity.

FUNCTION OF THE SKIN

The normal function of the skin is to pass off into the air a great amount of heat and moisture, he continued, and from the standpoint of health, it is necessary that the surrounding air be capable of carrying off such exhalations. Air conditioning, by controlling the two factors, temperature and humidity, can do much to increase the comfort of our surroundings.

One danger to avoid in air conditioning, suggested Dr. Cutter, is too great a temperature differential between the air-conditioned space and the outside. When a person comes from the outside into an air-conditioned room, if there is a great temperature reduction, the skin capillaries contract suddenly, forcing the blood into the visceral organs, particularly the kidneys. This produces congestion and impedes the normal flow of the blood stream.

One becomes aware of this reaction by a sensation of chilling. Dr. Cutter indicated that a temperature differential of 15° should not be exceeded lest this chilling sensation be experienced.

Opening the meeting, Dr. Cutter spoke in the absence of Prof. Philip Drinker of the Harvard School of Public Health, who was scheduled to appear but was unable to come to Chicago.

'NO STANDARDS YET'—DRINKER

A letter from Prof. Drinker was read, suggesting that "we have not as yet reached the point where well-defined standards or narrow zones for air conditioning as applied to buildings are admissible. In view of highly unpredictable outdoor weather, it seems rash to attempt too much uniformity or standardization indoors."

"One of the most spectacular, and probably the most appreciated application of air conditioning is in our railroad trains, Mr. Carrier observed. Heat, dust, and noise have all been removed. True, there are few objectors to air conditioning in the trains and elsewhere. Even the most perfect system would find some critics, but unfortunately, as with every new development, there are mistakes both in installation and operation. A general survey of air-conditioning systems seems to indicate that the fault lies primarily in the operation.

CONTROLS SET WRONG NOW

It is Mr. Carrier's belief that many systems are operated at too low a temperature and too high a humidity. Sometimes this may be inherent in the equipment, but generally it is found to be due to the desire of the owner to "show off."

In part, however, it is due to the fact that theater attendants, clerks in stores, etc., are subject to the temperatures during the entire day and become accustomed to it. A higher temperature would seem too warm to them, while temperatures comfortable to the ushers and clerks are too cold to the person coming in for a short time.

"We need a better understanding and perhaps state regulations regarding the minimum conditions allowable in an air-conditioned space," averred Mr. Carrier.

OCCUPANCY IMPORTANT

"These requirements should be based on the condition of occupancy as well as the outside temperatures. Places in which people remain a short time should have a higher temperature than those places where they stay a longer time.

"I, personally, have noticed in going into certain lounge cars on the railroad that at first conditions seemed just right but after remaining awhile I wanted to take off my coat to be comfortable. In this case the difficulty was not so much that the temperature was too high as it was that the humidity was too high.

"The same condition was noticed on a hot day in the railway station at Dayton, Ohio. This has an evaporative cooling system. The temperatures on a hot day are very acceptable and upon entering one is impressed by its coolness. In a short time, however, one begins to feel sticky and uncomfortably warm.

"In air conditioning for manufactured products, particular attention is always given to the humidity. In air conditioning for human comfort, however, the emphasis has been generally placed on temperature. This is undoubtedly a mistake on the part of the vendor as well as on the part of the user.

CARRIER'S VIEWPOINT

"A reasonably low relative humidity with a higher dry-bulb temperature is decidedly preferable to a lower temperature with a high humidity, even though they lie on the same line of effective temperature on the human comfort chart, based on the researches of the American Society of Heating & Ventilating Engineers.

"The so-called comfort chart is, in the minds of many of us, misnamed. What this chart really does is to give the lines of equal temperature sensation, but summer discomfort comes as much from excessive moisture next to the body and in the clothing as it does from a sensation of warmth.

CONDENSES IN CLOTHING

"High atmospheric humidities may indeed evaporate nearly as much moisture from the body as low humidities at the same room temperature, but this alone is not the criterion of comfort. With high humidities the effect is to condense moisture in the clothing.

"This is especially noticeable where people are coming immediately from out of doors and therefore perspiring freely. In such cases the clothing at once becomes highly conductive and a chill is frequently experienced when temperatures are carried too low. This is a very complex subject which only recently is being given the study that its importance deserves."

STORAGE IDEA NEEDED

If the electric distributing lines gradually reach their summer peak load due to the rapid increase of air conditioning, it will become desirable both from the standpoint of the power companies as well as the user, to relieve this peak by making the large plants partially independent at least of outside power supply, while at the peak load, Mr. Carrier said.

The refrigerating machine now accounts for 80% of the total maximum air-conditioning power load, yet it accounts for less than one half of the annual power load for the air-conditioning plant. This also may be remedied by storage systems in which the refrigeration can be stored up during periods of light power load. Undoubtedly favorable differentials in power rates would be most potent in bringing this about.

Another field in which air conditioning will be promoted, he declared, is in a more complete standardization in large systems of air conditioning, which will result in low operating cost and much better year-around operation.

FORESEES NEW SYSTEM

Said Mr. Carrier:

"A practical, although a rather revolutionary, system must be evolved for complete air conditioning of buildings. The ideal system of the future is one that controls automatically the temperature and humidity in accordance with the individual requirements in all parts of a building.

"Such a system must function satisfactorily, not only in summer and winter, but also in intermediate seasons where there are frequent abrupt changes during the day from heating to cooling requirements.

Elliott Harrington of the General Electric Co., Bloomfield, N. J. spoke on "Some Practical Applications of Air Conditioning." He classified the market for air conditioning into the following three groups: residences, commercial establishments, and public assembly rooms.

The first, residences, represents the smallest existing market of the three, although it is increasing, particularly in the south and southwest where systems up to 30 tons are in use.

HARRINGTON'S IDEAS

Most important considerations in residential air conditioning are year-around comfort, reliability, quietness, and low cost. Mr. Harrington stated that by night air circulation and by the use of awnings, savings as high as 30% in operating costs can be achieved.

In air conditioning commercial establishments, economy is of prime importance, he observed. This can be achieved by the utilization of existing facilities and by pre-determining the extent of occupancy. Well water can frequently be used for pre-cooling.

Quietness of operation, even temperatures, economy, and ability to circulate a large volume of air are the most important features of an installation in a public assembly room, such as a theater.

Papers read by Mr. Hertzler, Mr. Henderson, Mr. Buenger, and Mr. Leopold are reprinted on pages 6 and 7 of this issue.

Members of the Chicago committee which arranged the program include E. T. Murphy and R. L. Jones of the Air Conditioning Manufacturers Association; John Aeberly of the Chicago board of health; Samuel R. Lewis of the Chicago Association of Consulting Engineers; William Jones Smith of the Chicago chapter of the American Institute of Architects; Leo J. Weissenborn of the Illinois Society of Architects; Leigh S. Keith and Robert E. Hattis of the Western Society of Engineers; and J. R. Vernon and Tom Brown of the Illinois chapter of the A.S.H.V.E.

I. T. & T. Signs Contracts With Mills & Baker For Foreign Rights

(Concluded from Page 1, Column 2)
electric refrigerators was announced by the company several weeks ago.

Under the contracts just completed, Mills will supply the small size industrial icing and refrigerating units, and Baker the large icing machines and air-conditioning equipment.

The contracts provide for manufacturing rights and technical assistance, and the I. T. & T. plans eventually to manufacture this equipment in several of its European factories, it was said. For the present, however, they will be exported and marketed abroad under the Standard Electric trade mark.

Principally manufacturer of all types of telephone, telegraph, cable, and radio equipment, the International Telephone & Telegraph management is effecting a diversification policy. Several new lines of manufacture have been added for the factories in Belgium, England, Germany, France, and Australia, with electric refrigeration potentially the most important.

Larkin Moves To Chicago; Firm Names New Officers

(Concluded from Page 1, Column 5)
"LUL" Process coil-producing equipment, will be located at 2623 W. North Ave., Chicago, where he will produce and market air-conditioning coils, coils for commercial refrigeration, comfort-cooling units of the blower type, and "Rapidaire" pans.

Coincident with Mr. Larkin's resignation as president and director, it was also announced that the name of the company has been changed from Lester U. Larkin, Inc. to LUL Products, Inc.

Thomas J. Morton, Jr., who for some months has been chairman of the board of directors, has been elected president of the company. Edward Barger has been re-elected vice president and general manager of the company, and succeeds Mr. Larkin on the board of directors. He also will assume charge of the company's sales.

LUL Products, Inc. is not a new corporation, but is a continuation of the old corporation under a new name, Mr. Morton said. This action was considered advisable, he declared, in view of Mr. Larkin's no longer being actively associated with the organization.

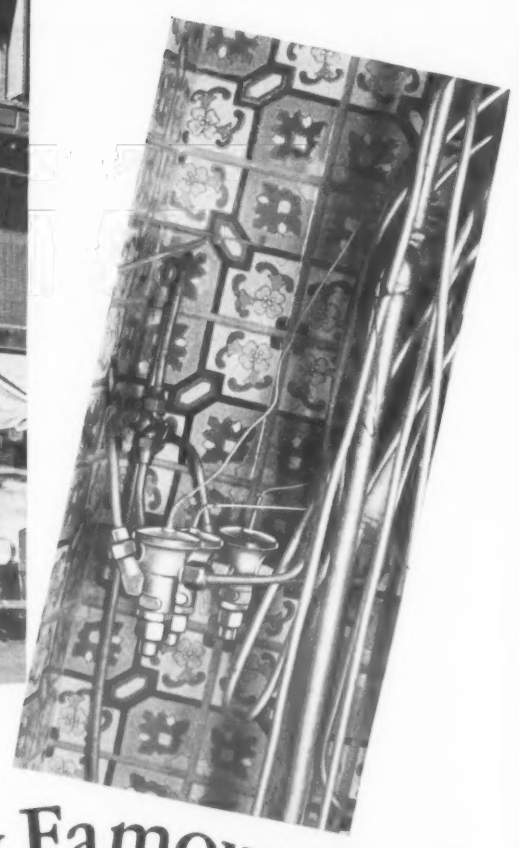
No change in the ownership or sponsorship of the company has been made, it was pointed out, and no change in the directorship except for the election of Mr. Barger to replace Mr. Larkin. The latter retains the same financial interest he held during active connection with the company.

Installation
Bernstein's Fish Grotto
123 Powell, San Francisco

Refrigeration Unit
Westinghouse

Installed by
Colvin Templeton, Inc.
San Francisco

Valves
3 No. 205 Thermostatic Expansion Valves



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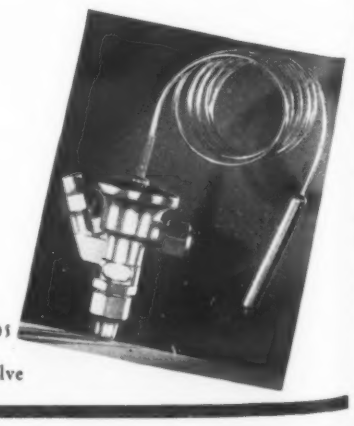

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The Newspaper of the Industry

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THE COLD CANVASS

By B. T. Umor

N-'Ice' Selling All Around

This corner recently made some mention of the publicity accorded Jim Moran, Washington, D. C. salesman, when he mushed into the Frozen North and won a $500 bet by selling an icebox to an Eskimo. But it develops that this was but half of the sales feat.

Hatching another bright idea after his igloo-to-igloo campaign had met with success, this ambassador of refrigeration gave the "coals to Newcastle" fable its longest stretch by chipping off 200 lbs. of ice from a glacier, packing it in "dry ice," and carting it all the way back to Washington. Then he sold it to an ice company, to advertise as "the oldest ice in the world."

Selling the glacial ice paid for the trip, so the $500 bet money was just so much velvet.

P. S. He sold the refrigerator on the point that food could be kept warmer in it than outside, and took $50 in cash, a wolf skin, and some carved ivory in on the deal.

* * *

Coat Conditioning

Of course, everybody knew it was only a question of time until "air conditioning" would get itself adopted as a "year-around" item in the clothing field, what with the appearance last summer of "air-conditioned" hats, caps, shirts, and suits.

It remained for the overcoat people, however, to insert the "all-year" touch by providing the "winter conditioning" feature. A recent creation features a protective lining of cork, to keep heat in and cold out. Supposedly by wearing this overcoat, the subject is always in the "winter comfort zone."

Boy, fetch my padded hat! I feel a spell of wall-bouncing coming on.

(Concluded on Page 2, Column 5)

Oct. Commercial Sales Near 1937 Mark

DETROIT—Sales of commercial refrigeration and air-conditioning equipment by members of the Commercial Refrigeration Section of National Electrical Manufacturers Association to distributors and dealers in October totaled 6,628 units, only 316 below the total for the corresponding month of last year.

World shipments of household electric refrigerators during the month were off about 40% from the 1937 total, however, amounting to approximately 47,000 units, as compared with 77,900 last October,

(Concluded on Page 21, Column 3)

Union, Sears Reach Accord On Saturday Closing

MILWAUKEE—Settlement of a dispute over Saturday night closing hours between Sears, Roebuck & Co. and Local No. 1343 of the Retail Appliance and Household Furniture Sales and Service Men's Union has been announced by R. H. Davie, manager of Sears' three retail outlets, and Herman Seide, secretary of the Milwaukee Federated Trades Council, chairman of a special committee to which the matter had been referred.

According to the agreement, the Sears stores will operate Saturday nights, starting Dec. 5 and continuing to Jan. 1, with the exception of

(Concluded on Page 5, Column 5)

Dealers' Messages Urge Formation of Conditioning Assn.

DETROIT—Telegrams, letters, and cards received by the Air Conditioning Association of Michigan from many parts of the country here this week indicate a continued interest in the proposed Air-Conditioning Dealers' Association, reports J. H. Keller, president.

At a preliminary meeting held in Detroit Nov. 28, the function, scope, and desirability of the proposed association was discussed by industry representatives from Cleveland, Chicago, and Detroit.

An organization meeting of the proposed association is scheduled for the Stevens hotel, Chicago, Jan. 17, when industry leaders from all parts of the country will gather to attend the All-Industry Refrigeration and Air Conditioning Exhibition.

Air-conditioning dealers present at the Detroit meeting pointed out that their primary interest was in the sale of air-conditioning equipment, rather than installation work, and indicated that the new organization should be established to meet the requirements of firms who are

(Concluded on Page 14, Column 1)

Contracts on Prices Seen For Buffalo

DETROIT — Prediction that distributors and dealers in Buffalo will be working together by the first of the year on a program designed to foster fair trade practices and maintenance of list prices, either under the provisions of the Feld-Crawford Act or possibly some new type of distributor-dealer contractual relationship, was made by W. E. Henning of Appliance Wholesalers, Inc., when interviewed here last week. Mr. Henning was in Detroit to attend the preview of Kelvinator's 1939 products.

"Dealers have apparently got together in a workable organization and are holding meetings, and the distributors are also meeting together to study the possibilities of various plans, but I think we will all be working together by the first of the year," Mr. Henning stated.

Mr. Henning believes that with any sort of improvement at all in general business conditions, 1939 should be a good year for household

(Concluded on Page 2, Column 1)

Sales Training Institute Formed By Kelvinator

350 Distributors See 1939 Products Which Will Be Announced In Jan.

(See Pictures on Pages 2 and 23)

DETROIT—Formation of a National Salesmen's Institute by Kelvinator division of Nash-Kelvinator Corp. for the better training of its selling representatives was announced by President George W. Mason at last week's convention launching the company's "silver jubilee" year in the electric refrigeration field.

Three hundred and fifty Kelvinator distributors, present at the two-day convention, viewed the "Silver Jubilee" Kelvinators, which will be announced in January.

New electric ranges, washers, electric water heaters, ironers, commercial and air-conditioning equipment, stokers, and oil burners also were unveiled at the meeting, and will be publicly announced later.

"A great need in U. S. business today is better salesmanship," said Mr. Mason in announcing the formation of the Salesmen's Institute, news highlight of the convention.

"Better salesmanship will help tremendously in keeping goods flowing steadily from producers to consumers, thereby lessening the disastrous depression log jams which

(Concluded on Page 24, Column 3)

Purge Methyl Chloride To Outside, Says Victim

(See Picture on Page 23)

DETROIT—D. J. "Jerry" Bowen, manufacturers' agent in Dallas, Tex., for refrigeration equipment and parts, has learned a lesson that all service men and others working on refrigeration systems should know—when you're purging a methyl chloride system, purge the gas to the outside atmosphere.

Mr. Bowen, who likes to know all about the equipment he is selling and who isn't adverse to working on a system himself, was running a series of tests on some units, in which he was using methyl chloride very freely as a cleansing agent and

(Concluded on Page 24, Column 2)

John Knapp, Norge Vice President, Dies Suddenly

DETROIT — John Herbert Knapp, vice president and assistant general manager of Norge division, Borg-Warner Corp., died suddenly at his home, 17598 Parkside Ave., Thursday evening. He had been in ill health for several months prior to his death.

Mr. Knapp, the son of the late Dr. H. D. Knapp, and Margaret R. Knapp, of Flint, Mich., was born in Washington, D. C., Dec. 30, 1893. He is survived by his wife Evangeline, and two sons, John and David; his mother, and sister, Ada Knapp, of Flint; and two brothers, Dr. B. F. Knapp of River Rouge, and Henry Knapp of Flint.

Funeral services were held Monday afternoon at the residence and burial was in Holy Sepulchre cemetery.

In the passing of Mr. Knapp, the home appliance industry loses one of its best-known figures. During the

(Concluded on Page 24, Column 2)

Kitchen Bureau Plans New, Larger Drives

PHILADELPHIA—New campaigns on electric refrigerators and the all-electric kitchen and an amplification of this year's drives on electric ranges and water heaters are on Modern Kitchen Bureau's promotional agenda for 1939, George E. Whitwell of Philadelphia Electric Co., chairman of the bureau, told the recent International Association of Electrical Leagues meeting here.

The electric kitchen campaign, Mr. Whitwell said, will contain special promotional and advertising mate-

(Concluded on Page 5, Column 2)

'39 Appliances on View Before Industry Exhibit

CHICAGO—Visitors to the First All-Industry Refrigeration & Air Conditioning Exhibition, to be held at the Stevens hotel here Jan. 16 to 19, can look over new 1939 household refrigerators, unit air conditioners, and home appliances by coming to Chicago a few days earlier.

Four "home furnishings" shows are scheduled for the week beginning Jan. 8, and all four will be held in

(Concluded on Page 24, Column 1)

Huge Campaign On 1939 Units Planned In N. Y.

Manufacturer Cooperation Sought In Setting Up Schedule on Prices

NEW YORK CITY—"The largest mechanical refrigerator promotional campaign ever undertaken" will spearhead the 1939 drive of Consolidated Edison Co. of New York for increased appliance business in this territory, E. F. Jeffe, vice president of the utility, told more than 250 dealers at the monthly meeting of the Electrical Appliance Merchants' Association of Queens last week.

Discussing the progress of the company's present "Bargain Package" campaign on small appliances, which last week passed the 177,000 mark, and which the company expects will reach 270,000 before the drive closes, Mr. Jeffe urged dealers to "forget about that talk that we have any idea of leaving you hanging in mid-air without any support when the present campaign is finished."

"We are going right on having bigger and better campaigns," he

(Concluded on Page 5, Column 1)

New England Jobbers To Meet In Chicago

WORCESTER, Mass.—Members of the New England Refrigeration Jobbers Association will hold a meeting during the First All-Industry Refrigeration and Air Conditioning Exhibition in Chicago Jan. 16-19, it was decided at the organization's monthly meeting Nov. 15, reports Robert W. Sheperdson of Standard Supply, Inc., secretary-treasurer,

All members of the New England jobber group will be present in Chicago for the convention of the National Refrigeration Supply Jobbers' Association, which is being held in connection with the All-Industry Exhibition, and for that reason it

(Concluded on Page 24, Column 1)

Reduce Profit To Fight Chains, Says Dealer

HUNTINGTON, W. Va.—"Dealers should be 'dollar profit' minded rather than 'discount' minded," says Howard A. Emmons of Emmons-Hawkins Hardware Co., Kelvinator distributor here.

"We are getting plenty of competition from the private brand refrigerators sold by the chain stores, and the only way that I can see to combat this situation is to reduce the gross margin of profit for the dealer and distributor.

"Specialty selling methods, which have been used successfully in the

(Concluded on Page 2, Column 3)

Anderson To Supervise Norge Advertising

DETROIT—Appointment of Lee Anderson Advertising Co., Detroit, as advertising counsel for all products of Norge division of Borg-Warner Corp., effective immediately, is announced by James A. Sterling, Norge advertising and merchandising manager.

Lee Anderson, head of the agency, will personally supervise advertising counsel activities on all Norge products, including refrigerators, electric and gas ranges, laundry equipment, and heating and commercial refrigeration products, Mr. Sterling's announcement stated.

Convention Time Is Here Again

George W. Mason, Nash-Kelvinator president, cuts a birthday cake to signify the start of the 25th anniversary year of Kelvinator, oldest company in the household electric refrigeration field. Watching him are Henry W. Burritt, vice president in charge of sales, and J. Nelson Stuart, director of advertising and sales promotion.

They Welcomed Kelvinator Distributors To 'Silver Jubilee' Convention

Members of Kelvinator's family of distributors were greeted by executives of all branches of the company at the banquet celebrating the start of their "silver jubilee" year in the electric refrigeration industry. Here, left to right, are Al Willis and Jack Egan of Redisco, Kelvinator finance affiliate; M. L. Hillmer, Detroit factory manager; C. C. Thomas, manager of the cabinet design division; L. A. Philipp, chief engineer; H. G. Perkins, vice president; W. F. Armstrong, vice president; and George W. Mason, president.

Distributor-Dealer Doings

Price Contracts Predicted For Buffalo By Distributor Who Sees Good Year

(Concluded from Page 1, Column 2)

electric refrigerator distributors and dealers.

"My inventory situation today is the best it has ever been in the 11 years I have been handling electric refrigerators," declared Mr. Henning, in pointing out that the excess of "holdover" merchandise had been a great deterrent to the sale of 1938 models.

"My stock of refrigerators is only slightly more than one-tenth of what it was at the same time last year; in fact, I sold more refrigerators in December of last year than I now have on hand," the distributor declared.

Mr. Henning believes that the percentage of sales of refrigerators by his dealers in which the replacement of an old electric refrigerator is involved is between 25 and 30%, somewhat higher than the national average.

So far, the disposition of the used boxes has not proved much of a problem, Mr. Henning says, because there has been a ready market for them in Buffalo.

"Much of the market which has not been sold in Buffalo," he relates, "is made up of the working class, many of whom are foreign-born. It has taken a long time to educate these people to the advantages of electric refrigerators, and even when they do get ready to buy, they are often a prospect only for a used box."

The sale of repossessed and used refrigerators must be taken into account when one begins to talk of the decline in retail unit volume of household refrigerator sales this year, Mr. Henning points out. While a distributor's sales may be off 50 to 55% in terms of units, the dealer is likely down only 30 or 35%, because of the sale of used, repossessed, or heldover merchandise.

Mr. Henning's territory covers 13 counties in western New York state and eastern Pennsylvania. He states that refrigerator sales have generally been better in the smaller towns than in metropolitan Buffalo, and notably better in one of two towns in particular, where a dealer serves a rural area that has just been supplied with electricity.

"Fred Selway, a hardware dealer in Batavia, N. Y., who sells everything from tacks to horsecollars to the farmers in that territory, has had a 150% increase in refrigerator sales over last year's figure. And the dealer in Medina has had almost a 100% increase in sales over 1937.

"On the other hand, where business has been bad, as in the oil towns in Pennsylvania, the drop has been even sharper than it has been in big cities."

With respect to other appliances Mr. Henning is enthusiastic over radios, but has been disappointed in oil burning space heaters. Too many makes on the market and a growing public dissatisfaction with the failure to install heaters properly is making him cock a critical eye at the business.

"There are a number of factors necessary in the installation of an oil-burning space heater to make it work properly which the salesman either doesn't understand, or is too lazy to check up on," Mr. Henning declares.

"The salesman ought to always check on where the space heater is to be installed and the condition of the chimney, and to know what he's doing when he does make a check-up before the installation," Mr. Henning avers.

300 Dealers, Salesmen See Crosley Line

HARRISBURG, Pa. — Preview of Crosley's 1939 line of three deluxe Shelvador refrigerators recently was held by Peirce Phelps, Inc., local distributor, for more than three hundred dealers and salesmen, reports J. E. Alexander, branch manager.

Richard O'Connor, manager of the range division, and Frank J. Hogan, Jr. represented Crosley Corp. at the meeting. Phelps hosts were J. Trevor Peirce, vice president and sales manager; Mr. Alexandre, Harrisburg branch manager; Charles F. Limroth, credit department manager; Paul Tillett and Charles Edgar, sales representatives.

40% Gross Profit on Trade-In Sales Necessary For Success In Replacement Market, Distributor Says

(Concluded from Page 1, Column 5)

sale of refrigeration, were expensive, and the units had to carry a high mark-up to cover sales costs.

"Now that refrigerators may virtually be considered 'store merchandise' the selling cost has been reduced to a certain extent.

"We still use house-to-house canvassing methods to sell refrigerators, and I know we pay our salesmen a great deal more than the chains, who depend largely on floor traffic for sales," Mr. Emmons said.

During recent years Emmons-Hawkins Hardware Co. has been able to advertise that there were "more Kelvinators in service in Huntington than all other makes combined." Out of approximately 19,000 wired homes in the city, the Emmons-Hawkins Hardware Co. has sold over 6,000 Kelvinators.

SMALLER PROFIT MARGIN

"If our dealers could only realize that it would be better to sell more refrigerators, with a smaller margin of profit, than to sell but a few units on a long discount basis, I believe we could get more business.

"My understanding of the matter is that the chain stores have a very narrow 'spread' between manufacturer and ultimate consumer. This makes it possible to sell a good refrigerator at a lower price, and we have to grant that several of the chains have been putting out refrigerators that are good value for the price," Mr. Emmons asserts.

CHAIN COMPETITION

"As time goes on, it becomes increasingly difficult for us to justify the price differential that our system of selling requires. Either we will have to keep the price up and increase our specialty selling force, or lower the distributor-dealer margin, and compete with the chains on their own ground," Mr. Emmons said.

Twenty-four wholesale men cover West Virginia and eastern Kentucky for the Emmons-Hawkins Hardware Co. These men carry a "full line" of hardware, and also sell refrigerators, heating equipment, and appliances.

In addition, a retail department is maintained in Huntington, where specialty selling methods are used to cover the city area.

AGAINST 'HORSETRADING'

Mr. Emmons believes that the dealer must treat "trade-ins" just the same as any other merchandise which has been purchased for re-sale, and he is adverse to using the "horse-trading" tactics prevalent in the automobile industry.

"When we take a Kelvinator, or other refrigerator in trade, we carry that unit on our books at what it cost us—not to exceed 60% of its retail value, with necessary repairs charged against the unit. This assures us of our regular 40% margin when the box is re-sold.

"If it is necessary to allow more than this amount for the customer's box, we take the difference off from the price of the new refrigerator, so the used unit shows its regular margin of profit.

"To illustrate—if we can sell a used refrigerator for $100 we allow the customer $60 for the box. In case repairs are needed, these are deducted from the allowance—say $10, bringing the allowance down to $50. When this box is re-sold, our 'used refrigerator department' shows a gross profit of $40 on the transaction.

"If the customer is interested in a new refrigerator at $275 and it becomes necessary to allow $75 on the old box to get the deal, we charge $50 of the allowance against the old unit, and take $25 off the selling price of the new box.

"In this way both our new and used refrigerator departments are constantly operated at a profit, and used merchandise in stock is handled as a part of our regular inventory."

According to Mr. Emmons the replacement market in Huntington at the present time accounts for only 10% of the total sales, not counting "ice box trade-ins," which are, in reality, only a minor reduction in the price of the new refrigerator.

MARKET IS GROWING

Mr. Emmons believes that the replacement market is growing, and that the dealer or distributor who wants to operate in this market must adopt a sound financial policy of handling these deals, to be successful in the new type of business.

"I would hate to see the refrigerator game turn into the 'horse trading' type of business prevalent in automobiles," Mr. Emmons asserted. "When it is necessary to make three or four sales to make one profit, we will not be interested in that type of business, but there is no reason for this becoming necessary, if the industry adopts sound trade practices at the present time."

CONDITIONING DEPT.

A separate department in the Emmons-Hawkins company, operated by Arthur Gregg, handles Kelvinator air conditioning and automatic gas heating. Because of low gas rates, the company handles stokers, but no oil burning equipment.

Mr. Emmons states that at present the heating and air-conditioning department "have more than they can do," and during recent weeks it has been necessary to turn down business.

Questioned about whether or not this business originated from new housing financed under FHA 90% loans, Mr. Emmons stated that he did not believe so, as most of the heating business was in the replacement field.

Success of the Emmons-Hawkins Hardware Co. in the replacement heating field, is but another indication of the broad market which exists for the replacement of obsolete and inadequate home heating equipment.

A vast majority of the commercial air-conditioning systems in use in Huntington today have been installed by the Emmons-Hawkins company under the supervision of Mr. Gregg.

Auto Lec Stores Opens Branch Outlet

THIBODAUX, La. — Auto Lec Stores, Inc. has announced the opening of a branch on Main St. here, specializing in Crosley refrigerators, co-managed by Sidney Price and Charles and Paul Gaudet.

Also announced was the moving of the Gueydan, La. store into larger quarters on East Main St.

THE COLD CANVASS

By B. T. Umor

(Concluded from Page 1, Column 1)

Surprised Father

Had there been an award for the most amazed person attending the recent Refrigeration Service Engineers convention in Buffalo, easily winner would have been S. R. Thompson of Refrigeration Maintenance Corp., Chicago.

An expectant father when he left for the meeting, at which he was a speaker, Mr. Thompson nevertheless was totally unprepared for the shock of learning that he had become the father of twins, a boy and a girl.

Nobody had thought to tell him that he might expect a blessed event in duplicate, and friends say the double surprise almost floored him. The boy and girl have been named "Jack" and "Jill."

* * *

A friend of ours says that her family is still waiting for their friends, dressed in formal attire, to gather around the new electric refrigerator they presented to Mother last Christmas, as the advertisements led them to believe would happen.

1,500 Homemakers Attend Open House, Party

TUNICA, Miss.—More than 1,500 homemakers attended an open house and party given by Newsom's of this city in connection with the opening of a new appliance department. A feature of the entertainment was an address by Ralph W. Carney of Coleman Lamp & Stove Co.

Joe Newsom is president of the company, which handles Frigidaire refrigerators, ranges, and water heaters; Norge ranges and water heaters; Coleman stoves, water heaters, lamps, and floor furnaces; Ray-Glo gas circulators and space heaters; Vulcan gas ranges; and RCA, Stewart-Warner, and Emerson radios.

A new service department also has been added, with James R. Mullins as service manager.

Losing Salesmen's Names Go on Goat's Blanket

NEW ORLEANS—Three salesmen on the losing team in a commercial equipment contest conducted by the Oak Appliance Co., Norge dealer here, had their names inscribed on the blanket of a goat which stood for one full day outside the company's office.

Salesmen were beaten in volume turnover during a six weeks' period by a team of seven who were confined to household unit sales. Both teams with John C. Ackmann, manager, officials of the local unit of the Commercial Credit Co., C. I. T., Norge Products Co., Norge distributor, and officials of the Mills Novelty Co. gathered at a dinner to celebrate the closing of the campaign.

Nellor-Prather Buys H. E. Dunn Stock

OMAHA, Neb.—Nellor-Prather Co. has purchased the capital stock of H. E. Dunn, Inc., and the two firms have merged under the latter name as distributor of Crosley refrigerators, radios, and washers, A-B ranges, Conco stokers, and Wayne oil burners and oil-burning furnaces.

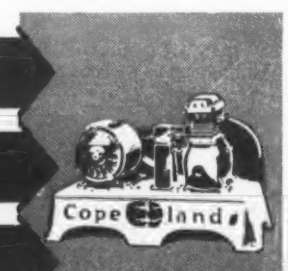
New firm has leased a two-story building. Officers are: E. J. Nellor, president; H. E. Dunn, vice president; A. J. Prather, secretary.

Dildine Service Co. Opens Appliance Dealership

DECATUR, Ill.—Dildine Service Co. recently has opened a new home appliance dealership and service shop at 320 N. Main St. The company sells refrigeration and air-conditioning equipment and stokers, and operates a service department on all these products. Floyd Dildine, Sy Rapier, and W. W. Doane head the new organization.

For Information on Motors FOR ALL TYPES OF Air Conditioning and Refrigeration Equipment WRITE TO
Wagner Electric Corporation
6441 PLYMOUTH AVE ST. LOUIS, MO.

BUNDY TUBING
Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: 1/8" to 5/8" O.D.
BUNDY TUBING CO., DETROIT

Outsell all others with
Copeland
Commercial Refrigeration
The efficiency, economy and dependability of all Copeland Commercial Units make prospects easy to find, make sales easy to close. Our twenty years of leadership in commercial refrigeration are evident in every unit.
HIGHEST EFFICIENCY!
LOWEST OPERATING COST!
LONGEST TROUBLE-FREE SERVICE!


COPELAND REFRIGERATION CORPORATION, Sidney, Ohio
INVESTIGATE COPELAND'S COMPLETE LINE OF HOUSEHOLD REFRIGERATORS AND WATER COOLERS

ALCO
SAVE 20-40%
Write for details of Alco's new Small Capacity "TK" Thermo Valve
Alco Valve Co. - St. Louis, Mo.

All eyes are focused on

Frigidaire for 1939

FRIGIDAIRE

THAT big things are happening in the Frigidaire plants is common knowledge. But just what is going on, few know, and none will tell. Rumors are plentiful, facts scarce. Flying trips into the field by Frigidaire officials indicate unprecedented measures to assure organization preparedness.

All that can be learned now is that sensational refrigerator and range announcements will be forthcoming shortly after the first of the year. Meanwhile, a curious nation and a curious industry are waiting . . . certain of only one thing:

Frigidaire, manufacturer of the world's fastest-selling refrigerator, has something big up its sleeve for 1939!

FRIGIDAIRE DIVISION • GENERAL MOTORS SALES CORPORATION • DAYTON, OHIO

ELECTRIC REFRIGERATORS • ELECTRIC RANGES • ELECTRIC WATER HEATERS

Specialty Selling Methods

Small-Scale Model Kitchen Kit Is Easy To Make & Offers Many Opportunities

NEW YORK CITY—For electrical appliance dealers, retail salesmen, and kitchen planning bureaus who wish a small-scale model kitchen kit with which to work out and demonstrate in a visual manner the scientifically arranged kitchen, such a kit can easily be constructed in a home workshop, declares Ralph R. Jefferson of the Consolidated Edison Co. of this city.

The home-made model kitchen kit has an advantage in that it can be set up clearly as a proposed individual problem, it does not have "identified" models to embarrass a dealer with multiple lines, and it lasts longer than cardboard models, Mr. Jefferson points out.

The isometric drawing indicates in general the proposed kit which Mr. Jefferson describes. Materials used in its making are inexpensive and usually very easy to obtain.

The kit is modeled in the proportion of one inch to the foot.

MATERIALS USED

Floor is half-inch plywood with a piece of navy blue or maroon linoleum glued to it. Walls are pressed wood or Marlite wall board material in a light yellow baked enamel finish. A deep blue Marlite piece may be substituted for floor linoleum.

One side and end wall are permanently nailed and glued to the floor. An additional piece of wall will be useful when U-shape rooms are called for.

The base cabinets, sink, ranges, and other blocks are cut from 2 inch x 3 inch white pine stock after the toe space has been rabbeted out. The toe space is 5/16 of an inch high and ¼ inch deep.

FACING THE BLOCKS

There are two methods of facing the blocks to represent units for which they are intended. First method is effected by using a good grade of white paper on which the unit face has been detailed in waterproof ink. Then the paper "faces" are glued to the already enameled blocks.

Second method is more lasting, and in greater detail. The blocks are cut to length and the vertical edges slightly chamfered. A curved swiss file or a shallow fine saw cut is used to outline drawers and doors, counter top, and other parts.

Blued steel staples (No. 10 double pointed tacks) are driven part way in to represent cabinet hardware.

A sink block two inches long, with a carefully carved-out bowl, is sufficient for any sink arrangement by using base cabinets at one or both sides.

Two ranges, one apartment cooker size, the other a residence type of cabinet range, are to be made with a back splash. Switches are formed by filing the heads of No. 50 brassed nails to a triangular or T-shape and dipping them in black enamel. Staples may be used by cutting them in half.

Refrigerators are made to an accurately scaled height, one to be 2 inches wide and the other 2½ inches wide. Use a jig saw to shape to desired design. Face both sides so that one side indicates a right hinged door, and the other side a left hinged door. Drive in staples tightly for hinges, with one partly driven in for door handle.

Pieces For a Kitchen Kit

(Made in 1-Inch to Foot Scale)

One 22-inch Range
One 42-inch Range
One 24-inch Refrigerator
One 30-inch Refrigerator
One 24-inch Sink
One 24-inch Dishwasher
One 24-inch Water heater
Two 24-inch Corner blocks
Three 24-inch Windows
Three 30-inch Doors
Three 12-inch Furring strips
Two 15-inch Base cabinets
Two 18-inch Base cabinets
Two 21-inch Base cabinets
Two 24-inch Base cabinets
One 30-inch Base cabinet
Two 18-inch Tall cabinets
Two 15 x 36 Wall cabinets
Two 18 x 36 Wall cabinets
Two 21 x 36 Wall cabinets
Three 24 x 36 Wall cabinets
One 30 x 36 Wall cabinet
One 36 x 36 Wall cabinet
Two 21 x 30 Wall cabinets
Two 24 x 30 Wall cabinets
One 30 x 18 Wall cabinet
One 24 x 18 Wall cabinet
Carrying case

Water heaters, laundry machines, or any other pieces are fashioned with distinguishing lines and hardware in much the same manner as the blocks described.

Wall cabinets are cut from 1 inch by 3 inch clear white pine and are otherwise finished the same as base cabinets. A simple way in which to provide hangers is by nailing metal molding to the tops. Use a CE-5 Pyramid or M-70-A Marlite molding.

Three or more pieces of 1 inch by 1¼ inch white pine enameled a light blue on all sides are used for "furring out" over the cabinets.

DOORS AND WINDOWS

Doors and windows may be of Marlite or sheet-metal, orange color. If sheet metal is used, the top is formed to hook over the wall partition. Windows are to be two inches wide and striped to resemble venetian blinds. One should allow the other to telescope it for any width window desired. Doors are to be made 2⅛ inches wide.

The blocks when cut to size are scored and sanded, then sprayed or brushed with several coats of white enamel on six sides. Sink and counter tops are coated with aluminum paint which is extended down the sides to indicate a 1½ inch top.

Ranges remain all white with surface units aluminum or black painted circles. All toe spaces are enameled black. Hardware is put on last to give a clean cut finish. Doors are to have aluminum-painted kick and hand plates.

SUGGESTED USES

A kit such as this will be useful to draughtsmen and to those whose draughtsmanship is limited, Mr. Jefferson points out. It can be used for the instruction of salesmen and for lectures on kitchen planning. Dealers can use it to create a desire among shoppers.

One suggested use is to set up a model of a kitchen under construction and place the kit in the show window with a small card indicating the customer's name and address.

Another effective use is to survey several prospective kitchen jobs, setting up the kit and photographing each proposed planned kitchen, the photographs accompanying the bids.

Dealer Finds Booths At Fairs Are Profitable

MILWAUKEE—Fairs, home shows, and similar exhibits are a fine source of both immediate and prospective customers, says W. B. Knippel, Milwaukee appliance dealer, who proves it by pointing to the results of his own store's activities in this field.

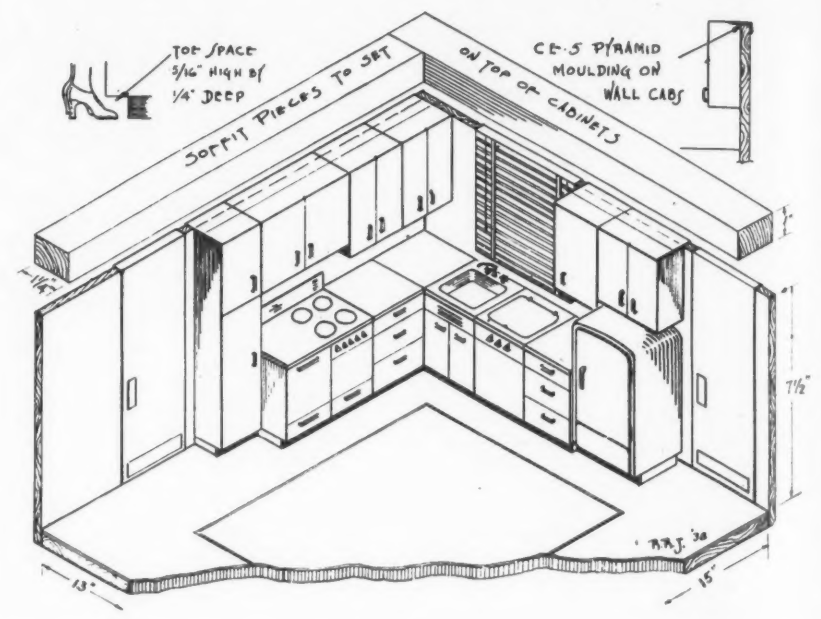
"Any fair visitor who stops at a display booth such as ours to inquire about the appliances exhibited is sufficiently interested to be listed as a prospect," reasons Mr. Knippel. "And usually such a person has plenty of time to listen to a full sales presentation, something he or she might not do if contacted at home, where other affairs might interfere.

"Many people who visit our booths at fairs and exhibitions buy some appliance right on the spot, and we follow up closely all those whom we fail to sell on the first attempt. There are many ways of obtaining the name and address of such a prospect, one of the most common being to ask permission to send the prospect some literature on the various appliances from time to time. Our records show that from 15 to 50% of these prospects eventually buy.

"We frequently call on prospects as many as six or seven times, and often we don't make a sale until the fifth or sixth visit. We have found that persistence pays, but we don't believe in high pressure methods. Persistence can be made inoffensive if tact is used in making calls. Our salesmen also call on customers several times after the sale is made. This insures customer satisfaction and also paves the way for further leads.

"Indirect sales, too, result from these fair and home show displays—sales to people whose names have never appeared on the store's prospect list," Mr. Knippel declares. "In many instances people who walk into our store to look at some appliance incidentally mention the fact that they saw it at one of our fair displays some months ago and have just decided to buy."

Design for a Miniature Model Kitchen



Weston Offers Some Tips For Making a Success of a Dinner Meeting

KANSAS CITY, Mo.—With the "open season" for distributor and dealer banquets and dinner meetings approaching, G. W. Weston, secretary-manager of the Electric Association of Kansas City, has sent to association members a "master list" of cautions and suggestions designed to allow the meetings to be run off with greatest possible comfort to both speakers and listeners.

The list of suggestions, compiled from the composite experience of those attending the recent National Institute for Commercial and Trade Organizations' Secretaries at Northwestern university, Evanston, Ill., is as follows:

SOME 'DON'TS'

"(1) Don't hold banquets in a cold room.

"(2) Don't hold them in a hot room.

"(3) Don't hold them in a poorly ventilated room.

"(4) But, if your room is poorly ventilated, don't wait until the principal speaker is in the middle of his address and then get up and open all the transoms—or start the fans!

"(5) In setting up tables, don't have your head table located so the waiters must constantly pass around it in coming in from the kitchen.

"(6) In arranging a set-up, don't have your tables placed so the main entrance to the banquet hall is either right behind or slightly to one side of the head table, so all late comers and early goers will distract attention from the speaker.

"(7) Don't ever have a U set-up. It divides the crowd into two and forces the speaker to address an empty space between.

"(8) Don't set your head table so there are two or more clusters of glaring wall lights immediately behind the speaker's table, to blind and stupefy the audience even more than they will be stupefied by the speaker. If you have such a cluster of lights in such a location, arrange to have them turned out—but don't wait to do it until the speaker starts speaking.

"(9) Don't fail to provide a lecture or reading desk.

'QUIET, PLEASE'

"(10) If you employ an orchestra to play during the first part of the evening, allow time for them to pack up their instruments and stumble down the stairs before, and not after, your speaker gets under way.

"(11) If you are the secretary, and in active charge of the meeting, don't trot constantly back and forth behind the head table while the program is in progress.

"(12) Don't trip up the center aisle and hand a note to the toastmaster, or lean over and whisper in the toastmaster's ear, just when the speaker is in the midst of an inspirational story.

"(13) Don't allow bell-hops to come in while a speech is in progress and roam at will through the audience seeking Dr. Jenkins for a telephone call. If doctors are present, arrange with them in advance to sit at a certain place, so that if they are urgently needed they can be quietly and unobtrusively summoned.

"(14) Don't put a blackboard up front and let the sergeant-at-arms run in periodically and write somebody's name on it. Nothing, short of a death message, is important enough to interrupt a good speech with such mechanics.

"(15) Don't have too many speakers.

"(16) Don't have too long a program.

"(17) And finally, and perhaps the biggest 'don't' of all—don't under any circumstances introduce unscheduled speakers on the program."

'Sugar Bowl' Game Trips Are Salesmen's Incentive

JACKSON, Miss.—Fifty free trips to the "Sugar Bowl" game at New Orleans on New Year's Day will be awarded by Mississippi Power & Light Co. to dealers showing the greatest percentage gain in sales during the last quarter of the year compared with the last quarter of 1937.

A point-scoring system for both electric and gas appliances has been set up, and dealers have been divided into several classifications so that small dealers, too, will have a chance to share in the awards. Dealers entered in the contest are requested to file weekly confidential sales reports with the utility so that results of the contest may be checked periodically.

Detroit Apartments To Get Modern Appliances

DETROIT—Modernization of three apartment buildings here will include new Westinghouse refrigerators, new gas ranges, and new hot water systems, according to J. J. McCarthy, apartment house manager for Westinghouse Electric Supply Co., distributor.

Contracts totaling $35,000 have been awarded by Frank King, vice president of the Mortgage & Contract Co., loan correspondent for the New York Life Insurance Co.

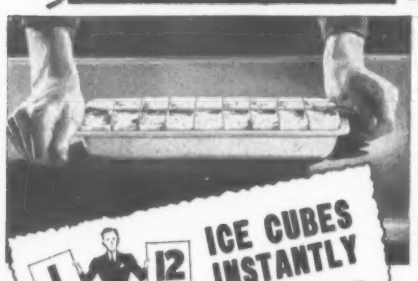
Mr. McCarthy reported that Mr. King had not planned to go ahead with the project until 1939, but yielded to the persuasive force of the Detroit "Sales Make Jobs" campaign.

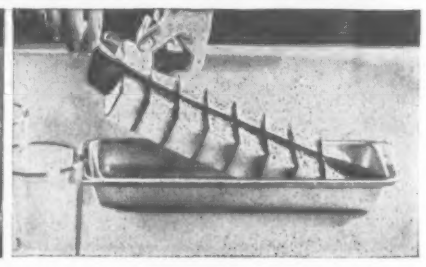
Anchor Lite Salesmen All Make the 'Club'

PITTSBURGH—Every salesman of the Anchor Lite Appliance Co., wholesale distributor in this area for Crosley products, has qualified for membership in the CMO of FL Crosley organization for distributor salesmen, according to Harold W. Goldstein, general manager.

Members of the Anchor Lite sales staff, working under S. I. Lasner, sales manager, are: M. H. Marshall, Harry Geduldig, M. B. Oppenheimer, C. W. Stetzer, Paul Hershorin, M. B. Gasper, C. B. Pollock, and M. M. Cohen. Frank L. Berger is division manager in the territory for Crosley Corp.

THE VERDICT IS—
PRESTO ICE TRAY





It's the unanimous verdict of refrigerator users that the greatest need for ice cubes is on those frequent occasions when one, two, or three persons want a few ice cubes in a hurry.

And it's the unanimous verdict of Presto Tray users that *only* Presto Tray *with rubber grid* gives one or a dozen cubes instantly, full-sized, cold and dry, without disturbing the others—without fuss, bother, or waste.

So, to influence a favorable verdict in favor of your refrigerator, have your salesmen demonstrate conclusively—and quickly—how the Magic Finish Presto Tray with Rubber Grid gives all the advantages of a fast-freezing metal tray *plus all the conveniences of a rubber grid.*

If you have not already done so—be sure and insist that your new refrigerators come factory-equipped with Magic Finish Presto Ice Trays.

INLAND MANUFACTURING DIVISION
General Motors Corporation Dayton, Ohio

WHEN A FEW ICE CUBES ARE PLENTY—DON'T RAID A TRAYFUL—USE
PRESTO ICE TRAY *with Rubber Grid*

Big '39 Refrigerator Drive Planned In N.Y.

(Concluded from Page 1, Column 5)

said. "We are going to have three or four campaigns in 1939; in fact, the initial order for one of them (presumably refrigerators) will amount to one million dollars. One of these campaigns will start Jan. 1, two of them will start April 1.

"They will include the largest mechanical refrigerator promotion campaign ever undertaken."

Emphasizing that his company is not trying to dictate to manufacturers what they should do, or what prices they should set up, Mr. Jeffe continued:

"We are trying to show them, by what we have done, that we are most anxious to have you dealers share in the appliance business, and share profitably; and we think that, after considering the matter thoughtfully, the others will want to follow suit.

"We are going to pool the profit on our Electrolux operation for the dealers. I don't believe other manufacturers will stand out when they realize just exactly what that plan is. If they do not support the principle embodied in the Electrolux plan, we think they will be making a mistake.

TO PUSH MAJOR UNITS

"Nineteen hundred thirty-nine," he went on, "will see a great effort on the part of our company directed toward the promotion of major appliances. We are going to try to create in the local market a big demand for electrical appliances, and we will try to do everything possible to make such a campaign successful.

"I hope we can bring into this picture everyone who legitimately sells appliances—not only the dealers, but the department stores as well.

"The 'holier than thou' attitude which has been manifested from some directions must be placed aside, because as long as it exists it will bar the way to real cooperation among all factors concerned with the appliance business for which we are striving.

"We believe we have enough capital and ingenuity to put the neighborhood appliance dealers on a par with anyone who is selling appliances."

INVITES DEALER HELP

He invited the cooperation of dealers in suggesting further ways in which the appliance business might be "straightened out" in the metropolitan territory.

"We have a local problem in this community," he declared. "We don't want to upset the national problems of manufacturers; yet, at the same time, I'm sure manufacturers don't want us to suffer locally because of their national problems.

"If manufacturers set up list prices on retail sales, there is no reason why they should not do it on wholesale sales as well."

Turning to the matter of allowing a special discount on appliance sales to utility employes, he said:

"Personally, I don't believe that any employe who obtains a fair return for his services should be entitled to a discount. No one in the employ of our company gets a discount from us, or through our help, on anything they buy.

"We can ask them to cooperate, but of course we can't tell them not to buy at certain so-called 'discount houses.' If any abuses exist in that direction, it is up to manufacturers and distributors—and they can stamp that problem out, if they wish to.

Association Meeting To Complete Campaign Plan

NEW YORK CITY—Final details of the electric refrigerator campaign to be conducted in this territory next spring will be discussed by members of the industry program committee of the Electrical and Gas Association of New York in a meeting scheduled for Dec. 7 with E. F. Jeffe, vice president of Consolidated Edison Co. of New York.

In an address before metropolitan appliance dealers last week, Mr. Jeffe termed the proposed campaign "the greatest promotion ever undertaken on mechanical refrigeration." The meeting will be closed except to committee members.

Kitchen Bureau Plans Five 1939 Campaigns

(Concluded from Page 1, Column 4)

rials for utilities and dealers interested in ensemble selling.

Tested sales ideas and promotional materials will feature the drive on electric refrigerators planned by the bureau for next year, which will be available to cooperating merchandisers in all fields.

Electric range campaign will be supported by five advertisements in the Saturday Evening Post, and will feature a unified drive from April 1 to June 1. This spring activity, to be known as the "Guess Again" campaign, will again feature the low cost of electric cookery as proved by experience of present electric range users.

Campaign on electric water heaters will feature a contest for utility representatives and appliance dealers, following successful experience this year with the monthly letter-writing contest.

Point-of-sale promotional and sales materials also will be available.

New next year will be a national drive sponsored by the bureau on electric roasters, fast-growing appliance. National advertising will back the campaign, with tie-in promotional and advertising materials available for local utility and dealer participation.

Gray Elected President Of Electrical Leagues

PHILADELPHIA—A. A. Gray, manager of the Electric Association, Chicago, was elected president of the International Association of Electrical Leagues at the organization's third annual conference here recently. He succeeds George R. Conover, managing director of the Electrical Association of Philadelphia, who held that post during the past year.

G. W. Weston, secretary-manager of the Electric Association of Kansas City (Mo.), was named vice president of the group, and J. S. Bartlett, managing director of the Electric Institute of Washington, D. C., was elected treasurer. O. C. Small of National Electrical Manufacturers Association continues as secretary.

Members of the association's board of governors for 1939 will be: G. W. Austen, Toronto, Ont., Canada; Mr. Weston; C. H. Christine, St. Louis; Ralph Neumuller, New York City; Mr. Gray; E. P. Zachman, Cincinnati; F. L. Hockensmith, Los Angeles; G. H. Nickerson, Pittsburgh; and Mr. Bartlett. Mr. Conover, president of the association last year, will serve as an advisory member of the board.

Managers and officers of electrical leagues from all parts of the country were present at the conference. In addition to the cities already mentioned, the following municipalities were represented: New Orleans; Boston; Minneapolis; the Tri-Cities; Dayton, Ohio; Cleveland; Salisbury, Md.; Camden, Hackensack, Newark, Paterson, and Trenton, N. J.; Charleston, W. Va.; Rochester, Buffalo, Staten Island, and Poughkeepsie, N. Y.; and Hartford, Conn.

Milwaukee Sears Stores & Union Agree on Plan

(Concluded from Page 1, Column 1)

Christmas eve, Dec. 24, when they will close at 6 p.m.

During January and February, the company has agreed to close Saturday nights. Efforts will be made to effect a city-wide agreement on Saturday closing among merchants, to hold after the present agreement ends.

Sears stores here had been picketed by union members because of their being kept open Saturday nights, in addition to Thursday and Friday. The union's contract with furniture and appliance stores permits them to remain open on Monday, Thursday, and Friday nights.

Local Sears management, however, claims that its decision resulted from a preference on the part of the public for Saturday night shopping, and that it has resulted in additional employment and larger incomes for clerks.

IN BIG INSTALLATIONS . . .

(*Left*) **Stuart Building,** Lincoln, Nebraska. "Freon" refrigeration for air conditioning by Airtemp.

(*Right*) **Florida National Bank Building,** Miami. George A. Fuller Co., contractors. March & Saxelbye, architects. Massena & Du Pont, consulting architects. "Freon" refrigeration for air conditioning by Pennsylvania Engineering Co.

(*Above*) **Owens-Illinois Glass Co.,** Pacific Coast offices, San Francisco. Engineered installation by Edward B. Ward Co. "Freon" refrigeration for air conditioning by Westinghouse.

AND IN SMALL ONES TOO . . .

(*Above*) **Black's Tea Room,** one of a number of stores and offices air conditioned in the Palmer Building, Atlanta, by Advanced Engineering, Inc. Newcomb & Boyd, consulting engineers. "Freon" refrigerant in Delco-Frigidaire equipment.

(*Below*) **W. A. Moncrief residence,** Ft. Worth. "Freon" refrigerant used in Westinghouse equipment installed by the Shield Co.

(*Above*) **Busy Bee Candy Store,** St. Louis, Missouri. "Freon" refrigeration for air conditioning by the Frick Co., Inc.

IT'S FREON*

refrigerants for safe air cooling!

IT'S NATURAL INDEED that leading refrigeration engineers should specify "Freon" refrigerants so regularly. For "Freon" refrigerants are leaders in *safe air cooling.*

"Freon" refrigerants have all the qualities that are desired for air conditioning and commercial and household refrigeration, and they are widely used for these purposes. They have been tested by the United States Bureau of Mines, and meet all the specifications for safety set by the Underwriters' Laboratories of Chicago.

Be sure you specify "Freon" safe refrigerants in your next installation.

KINETIC

FREON

REG. U. S. PAT. OFF.

safe refrigerants

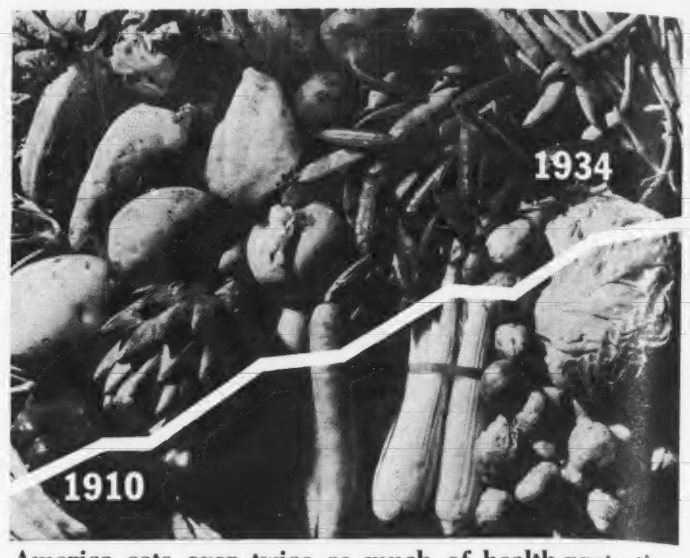
"'Freon" is Kinetic's registered trade-mark for its fluorine refrigerants

KINETIC CHEMICALS INCORPORATED
TENTH & MARKET STREETS
WILMINGTON, DELAWARE

YOU HAVE DONE A NOBLE THING

—YOU RETAILERS WHO HAVE SOLD REFRIGERATION TO AMERICA!

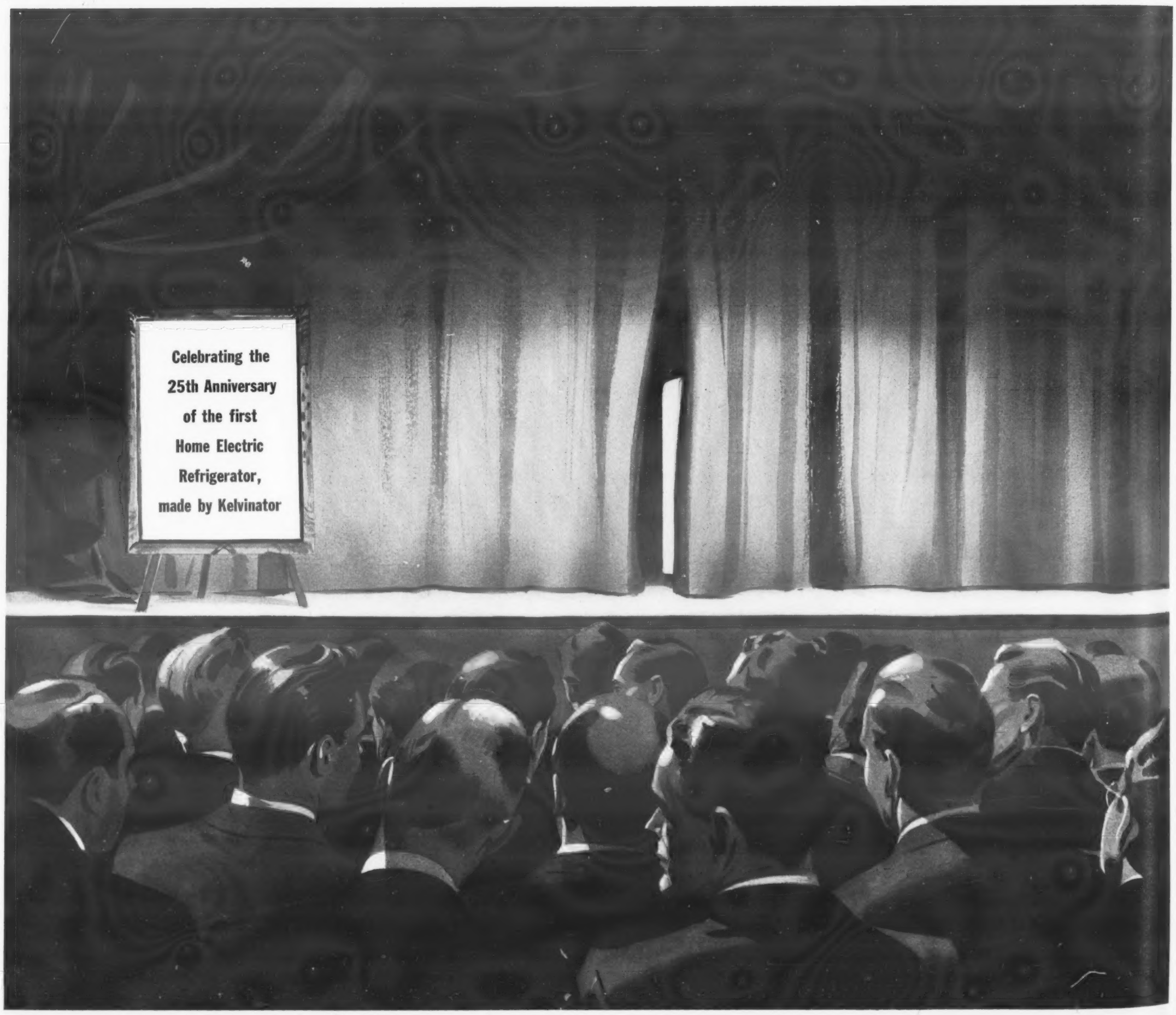
Thousands saved every year through better refrigeration. In one disease alone, enteritis ("summer complaint"), the electrical refrigerator has been called a main factor in the fall of death rate from 100 per 100,000 to 13.

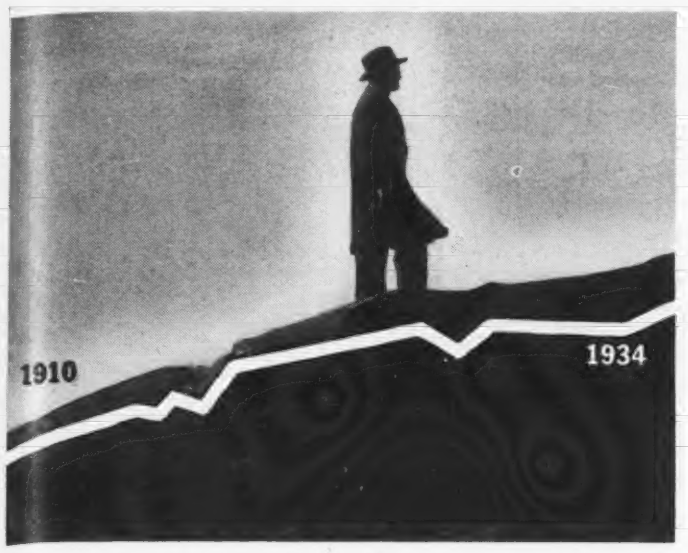


America eats over twice as much of health-protecting, body-building fresh fruits and vegetables . . . commodities shipped to us from all over the world, and which would not be in demand except for refrigeration in the home.

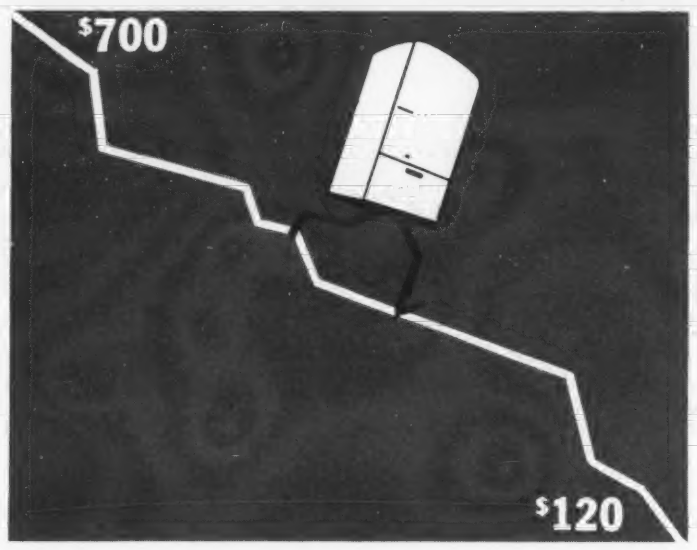
As America Celebrates the 25th Anniversary of Electric Refrigeration in the Home

All Eyes





Every ten years, *a year of added life is won for us,* through better living and medical conditions. Physicians credit electrical refrigeration with changing America's eating habits from unhealthful, heavy foods to well-balanced diet.



Ever-lower prices have brought the luxury of electrical home refrigeration within the reach of every wage-earner. Contrast the cost of the first Kelvinator with present prices, for a Kelvinator many times more efficient.

Unmeasured millions of dollars saved every year on food which would otherwise be spoiled. Electrical refrigeration has introduced a new and better way of marketing and of keeping perishable foods constantly safe.

Will Be on Kelvinator!

Kelvinator Invites Every Refrigerator Dealer in America to Share in the Golden Opportunity of the Silver Jubilee

NEW SILVER JUBILEE KELVINATORS TO BE SHOWN JANUARY 2ND

TODAY, every electrical refrigerator salesman and dealer can be proud of the part he's played in making this a finer, happier world. The pictures above tell the story that is so evident today on the 25th anniversary of the electric refrigerator in the American home.

And it is our greatest source of pride that in 1914 Kelvinator built the first successful electric refrigerator for the home . . . and was the first to bring into being this great new industry.

Naturally, on Kelvinator's 25th anniversary, you have every right to expect outstanding models, in keeping with the Silver Jubilee occasion. And you can, for this year the new line will go far and above your greatest expectations. This year we sincerely believe we have produced a series of Kelvinators that will be acclaimed by the trade and the home owner alike.

For these Silver Jubilee models have been planned to show what 25 years of experience can do. From pedestal to top they are completely new—completely re-designed—the most beautiful refrigerators ever offered to the public.

Inside is a new cold-making story with features certain to add more laurels to Kelvinator's title of Champion Ice Maker. There's a new interior arrangement with added conveniences that will put the teeth in any sales talk.

And planned to send you off on a running start for profits is the new advertising and merchandising campaign that will sell the Silver Jubilee program to the public . . . just as Kelvinator's "Sales Mean Jobs" sent this nation into a buying surge. This is a campaign planned to start people thinking about electrical refrigeration again . . . not only in terms of money they can save . . . but also in terms of luxuries they can afford. It is the ideal *dealer's campaign.*

This year we are confident that people who have never bought before will choose Kelvinator as their first electric refrigerator. And this year we expect hundreds of thousands of refrigerator owners to come in and ask about trade-ins on the new Silver Jubilee models. This year we expect so much because the new Kelvinators are so far ahead of anything you'll see this year.

We urge you to take advantage of this opportunity of a lifetime—to include Kelvinator in your 1939 plans. Be the first to feature on your floor this new line of Silver Jubilee models . . . and share not only the spotlight but the profits with us. KELVINATOR, Division of Nash-Kelvinator Corp., Detroit, Mich.

ON JANUARY 2ND A MESSAGE FROM

H. W. Burnett

Vice-President in Charge of Sales for Kelvinator—Division of Nash-Kelvinator Corporation

He will make an announcement of vital, personal interest to retail salesmen and to dealers in electrical appliances. This announcement will affect the net profits of dealers and will have a lasting influence upon the earning power and the business future of retail salesmen.

The Silver Jubilee KELVINATOR

GET IN THE SPOTLIGHT WITH KELVINATOR!

Commercial Refrigeration

New Kold-Hold Booklet Outlines Plate System

LANSING, Mich.—Extensive and detailed information on the construction, operation, and application of the Kold-Hold cooling unit is offered in a colorful new booklet just issued by Kold-Hold Mfg. Co. here.

Profusely illustrated with both photographs and diagrams, this new catalog (No. 39 in the Kold-Hold list) describes the refrigerating plate which is the heart of the Kold-Hold system, with cut-away photographs showing the construction of this plate and the way in which it is tested before being shipped. A diagram is used to illustrate the Kold-Hold cycle.

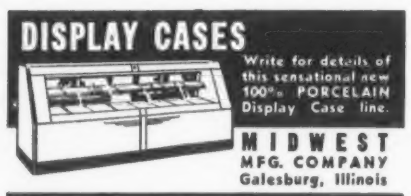
Section on truck refrigeration has several sample installations pictured and diagrammed, including installations for low temperature as well as high temperature applications.

Occupying the center portion of the booklet is a section on the new Kold-Hold cabinets for ice cream and frozen foods, and on conversion units for use on cabinets using other methods of refrigeration. Use of the Kold-Hold plates for such applications as ice cream hardening, beverage cooling, chilling of salads and sea foods, and locker plant refrigeration also is described.

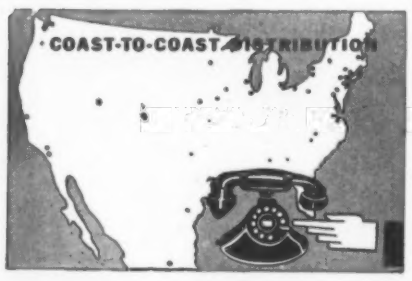
The catalog includes several pages of engineering data.

Omaha York Co. Submits Low Bid on Prison Job

LINCOLN, Neb.—York Ice Machinery Co. of Omaha submitted the low bid of $6,150 to the state board of control for refrigeration equipment to be installed at the Genoa prison farm packing plant. Plant refrigeration equipment recently was destroyed by fire.



ARTIC makes it possible to get temperatures down to —10.65° F. without going into vacuum on the low side. This prevents entrance of air and moisture—another reason why ARTIC is the Preferred Refrigerant for the necessary low temperatures now required in ice cream cabinets, household and commercial units. Write for complete technical information.



ARTIC—*the Preferred Methyl Chloride for Service Work*

DUPONT

E. I. du Pont de Nemours & Co., Inc.
The R. & H. Chemicals Dept., Wilmington, Del.

Streamlining, Updraft Cooling Keynotes of Sherer-Gillett Line

MARSHALL, Mich. — Modern streamlined styling and an updraft cooling system consisting of fan, coils, and diffuser distinguish the new line of reach-in refrigerators just announced by Sherer-Gillett Co. here.

Air is drawn in at the top of these refrigerators, and is diffused throughout the bottom of the box after having been cooled and dehumidified while passing through the coil compartment. Then the air gradually floats upwards and commences the cooling cycle all over again.

This system of refrigeration is said to result in maintenance of more even temperatures throughout the various levels of the box, and to increase the relative humidity, a decidedly advantageous factor in preservation of unpackaged foodstuffs.

Absence of extraneous decoration and use of radius corners in conformity with the Sherer line of refrigerated display cases and walk-in coolers mark the design of the new units. Hardware on these refrigerators has been chosen to conform with the refrigerators' new, smooth lines.

Known as No. 30, No. 45, and No. 70, the three new units are said to possess a flexibility which enables the salesman to fit the refrigerator to the needs of individual users.

No. 30 is designed for either self-contained or remote installation of the condensing unit, and glazed doors may be had in place of the solid ones. On Nos. 45 and 70, either glazed or solid doors are available, and a choice of door arrangement also is offered.

The case may be obtained with two door openings 29¾ inches deep, or one door opening 66 inches deep. The larger doors make the section usable for bulky objects, such as large pieces of meat, rails and meat hooks being provided for that special purpose.

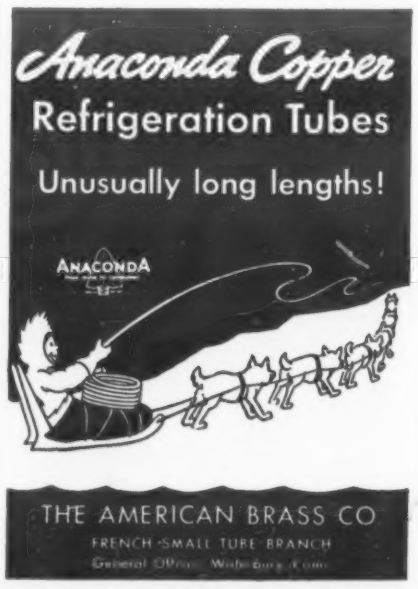
K. D. Zenkere is sales manager of the company.

Refrigerated Counter 55 Ft. In Length Installed In Buenos Aires

BUENOS AIRES, Argentina—More than 55 feet of counter, fountainette, and display case equipment has been installed in the cafeteria of the new Y.M.C.A. building here by Cia. Westinghouse Electric International, S.A. of Buenos Aires, distributor.

Refrigeration for service fountainette consists of one six-can ice cream storage cabinet, a milk cooling can, a cooling can for Chantilly cream, cooling equipment for soda and water, and a cooler for syrup jars and pumps.

A Westinghouse AFR-100-s condensing unit provides refrigeration for all these units. In addition, five individual refrigerated display cases operate with a 75-FL compressor.



Temprite's Automatic Beer Line Valve Is Designed To Correct 'Morning Beer' Dispensing Problem

DETROIT—An automatic beer line temperature valve, designed to avoid dispensing troubles by keeping beer in the line between keg and glass at a safe low temperature, recently has been announced by Temprite Products Corp.

The valve, model 845 in the Temprite line, has a list price of $7.50. It is designed to solve what is known in the trade as the "morning beer" problem, when higher temperatures in the beer line allow CO_2 gas to escape and form free gas.

When beer is next drawn, the undissolved gas passes through the cooler, and although the temperature of the beer may be properly reduced, the gas does not go back into solution, but appears as foam in the glass. Until the lines have been cleared of the undissolved gas, control of foam is lost. A small amount of gas in the lines may spoil several glasses of beer.

Increasing pressure on the keg will tend to reduce the separation of the gas in the beer line, but this has definite safety limits, and trouble can occur even under these conditions if the beer lines are warm enough, and if the beer is allowed to stand long enough in the warm lines.

Cooling the beer lines themselves is the solution to this problem which the new Temprite valve is said to make possible. Installation is as follows:

When the beer cooler is also used to cool water for the bar, the line leading from the cooler to the water faucet is cut and a tee inserted. A line either of copper or of block tin is connected to the tee, and is run parallel to the beer lines from the beer cooler to the point where they enter the pre-cooler. The lines then are bound together so they are in good contact, and the entire assembly is insulated with hair felt or other suitable insulation until the diameter of the package reaches 6 inches.

The beer line temperature valve is then connected to the end of the water line outside of the pre-cooler, and a line provided to carry the water away from the valve to the drain. Drain must be at a lower level than the valve, to prevent creating a pressure on the thermostatic element and a change in the temperature setting.

Valve is so designed that it acts automatically to limit the rate of flow. It is set at the factory to maintain a 55° temperature when used on a water supply having a pressure of 35 lbs. Water pressure higher than this will tend to raise the temperature setting. Where unusually high pressures are encountered, a pressure reducing valve is recommended, installed in the water supply line leading to the cooler.

Cold water from the cooler runs through the water line and chills the group of beer lines which is in contact with it. The valve, however, is provided with a thermostatic element, and as soon as the amount of cold water used is sufficient to reduce the temperature of the line, flow of water is stopped. As the line gradually warms, the valve will open again, but only enough to fill the line with cold water.

When beer is being used rapidly, no cooling of the line is required, and the valve remains closed. When the cooler is not used for long periods, such as overnight, the valve opens. But only from 2 to 4 gallons per hour are used, and this when the water in the cooler is not otherwise in use, it is pointed out.

Birds Eye Expansion Program Outlined

NEW YORK CITY—Building of a new quick-freezing plant in Florida, increasing of the output of quick-frozen beef, lamb, and pork products in Boston, and extending of the quick freezing of farm products are major steps in the expansion program for Birds Eye frosted foods now being carried out by Frosted Foods Sales Corp., division of General Foods Corp., as part of the parent company's $15,000,000 expansion plan.

This announcement was made by C. M. Chester, chairman of the board of General Foods Corp., as he explained in detail the company's huge investment in the future.

Mr. Chester said that the Birds Eye division is expanding its operations to meet the increasing public demand for quick-frozen foods.

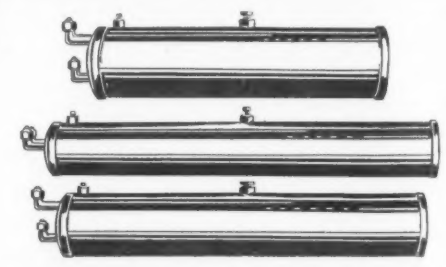
"Other developments are still in the plan stage, including a processing plant for seafoods," Mr. Chester added after telling of Birds Eye's principal expansion steps.

Warren Opens Branch In Shreveport, La.

SHREVEPORT, La.—Warren Refrigerator Co., Inc., commercial refrigeration manufacturer of Beaumont, Tex., has opened a branch sales office at 1608 Texas St. here. The branch, which will serve 21 counties in Arkansas, Louisiana, and East Texas, is managed by Charles Culotta. R. M. White heads sales.

KRAMER

SHELL and FIN TUBE CONDENSERS
Combination of Water Cooled Condenser and Liquid Receiver



KRAMER TRENTON AUTO RADIATOR WORKS TRENTON, N. J.

Conditioning Eliminates 'Bakery Taste' In Food, Bakers Are Informed

DENVER—The "bakery taste" in cakes and other products, caused by the odor of doughnut smoke being absorbed by the fresh pastery, can be entirely eliminated by adequate ventilation and air conditioning, L. H. Todhunter of the Western Bakers Supply Co. told the Rocky Mountain Bakers Association convention held here recently.

An experience in the elevator of a Denver department store started Mr. Todhunter on this line of thinking. He discovered that a strong odor of doughnuts in the crowded car came from a baker who had just come out of a doughnut kitchen.

The "doughnut smoke" odor was so strong that a woman in the elevator commented on it to her companion. Mr. Todhunter reasoned that if wearing apparel would absorb the doughnut odor to that extent, freshly baked cakes would certainly take on the same odor. Experiment has convinced him that his theory is correct.

According to Mr. Todhunter, a cake absorbs bakery odors in the same way that a sponge absorbs water.

"We all know what happens if you leave an uncovered bottle of milk in the refrigerator with a cut cantaloupe," he said. "The same odor absorbtion which takes place in milk occurs in a fresh cake.

"If this is true, no baker can get along without adequate ventilation. I believe that the air in the bakery should be changed every three minutes, and that adequate hoods and ventilating fans should be used to remove excessive smoke."

Powers Heads Century Sales In Southwest

ST. LOUIS—Fred Powers recently has been appointed regional sales manager of the southwest zone for Century Electric Co., manufacturer of motors and generators with headquarters here.

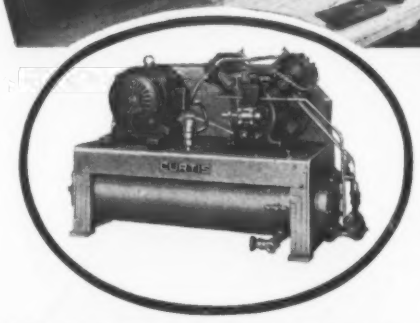
Mr. Powers formerly managed the truck refrigeration division of Century, which has charge of sales of Century Whitaker-Upp power systems for truck body refrigeration.

Why Curtis is the Extra Value Line

The Engineering Department

One of the factors that has contributed so much to the outstanding position of Curtis in the industry is the Curtis Engineering Department. Here are developed the engineering features that provide the background for the extra values incorporated in Curtis equipment; here Curtis pioneers many new developments in the air conditioning and refrigeration field.

Many of the improvements in design and construction that result in the exceptionally long life, high efficiency and trouble-free performance of Curtis Condensing Units have originated in the extensive Engineering Department of the Curtis plant.



At left—The Curtis 15 H.P. Shell and Tube Condensing Unit.

CURTIS REFRIGERATION AIR CONDITIONING and COMMERCIAL

"Builders of Condensing Units Since 1922"

CURTIS REFRIGERATING MACHINE CO., 1912 Kienlen Ave., St. Louis, Mo.
Division of Curtis Manufacturing Company

Profitable Sales Ideas

All-Around Salesman Better Producer All Year In Small Community, Dealer Says

READING, Pa.—While the salesman who specializes on electric refrigerators may sell more units than the man who sells three or four types of appliances, the "all-around" salesman will show a better yearly income, particularly in a small community, believes Paul Bear, appliance sales manager of Pomeroy's here.

"We have definitely determined that it is not advisable for a store of our size to have a separate selling staff for each type of major appliance," Mr. Bear stated.

"At one time we had four separate selling organizations, one each for refrigerators, washers, radios, and cleaners. Our experience indicates that the disadvantages are greater than the advantages. Such a plan may be more desirable for stores in large metropolitan cities, but it doesn't seem to fit the store in the smaller city."

MUST CONSIDER TURNOVER

One of the first factors to consider, Mr. Bear believes, is the turnover of salesmen. With four separate sales organizations, each limited to the selling of one type of appliance, a more rapid turnover of salesmen must be anticipated than in the organization where salesmen are permitted to sell any type of appliance. He has found that the attitude of the average salesman is that his earnings are limited under this plan. Regardless of the amount of specialized instruction he receives, the salesman wants to take advantage of every selling opportunity to increase his income. If one store does not give him this opportunity, he is sure to find a firm that will, Mr. Bear contends.

"I do not doubt that the man who specializes on refrigerators will sell more refrigeration units than the man who sells four major appliances," he continued. "But I have found that his earnings will not reach the high monthly average throughout the year that is attained by the man who sells a considerable number of other home appliances."

Considering the seasonal factor, this dealer points out the fact that despite sales effort and promotional activity there are certain seasons when some types of appliances are hard to sell.

He maintains that a salesman should be given the opportunity to maintain a fair average income from month to month, instead of trying to overcome discouragement with "pep talks" when sales are lagging on a certain line. Ability to earn money, he feels, is the only thing that prevents salesmen from going to another organization.

"Much has been said about training salesmen to sell more than one type of appliance. If a man can be trained to sell refrigerators, why can't he be trained to sell washers, radios, or cleaners?" Mr. Bear asked. "If a man has the capacity to absorb enough selling information about one type of appliance, he surely will be able to do the same thing with another appliance. At least, we have found he can."

SALESMEN ALTERNATE

The store's salesmen alternate on inside and outside work. Best results were obtained from a system requiring salesmen working outside to make a certain number of back calls each day, and in addition to these back calls, they make at least 10 calls on prospects furnished from the store's files.

A report is required on every call, permitting no padding of call lists. When call lists are turned in, they are usually checked back on one or two names by calling up the prospects, who actually tell when a salesman called.

At one time the store was negligent in checking back on the call lists, and salesmen became careless. Business that could have been had was lost as a result.

STORE CHECKS UP

Checking back on one report, Mr. Bear telephoned to a prospect to inquire whether the salesman had called. "No," she replied, "I haven't seen him, and it will not do any good to call now, because I just bought a refrigerator from another store."

"It is not difficult to keep our files filled with the names of prospects," he continued. "Salesmen in the department obtain the names and addresses of shoppers who are interested. If a customer does not mention her name and address during the conversation with the salesman, he may casually remark that he believes we have a refrigerator in a neighbor's home. He may say, 'You're Mrs. Jones from Cherry St.,' and, in most cases, the woman will give her correct name and address."

Small-Margin Sales Are Passed Up By 'Choosy' Dealer Who Uses 5-Point Program To Show Profit

KANSAS CITY, Mo.—Passing up sales in order to show a profit may seem like a funny way to run an appliance business, but it's one of the main points in the merchandising creed of Floyd A. Palmer, manager of Palmer & Blue Electric Co. here.

Briefly stated, Mr. Palmer's five-point platform of procedure is as follows:

1. If a deal doesn't look good, he turns it down.
2. He invests 2½% of his gross profit in varied publicity.
3. His stock is balanced among five major appliances.
4. He sells a number of makes, rather than one.
5. He runs a sales contest every month, the year around.

25% GROSS PROFIT

If there isn't a 25% gross profit, a deal just isn't a deal to Mr. Palmer. He keeps trade-ins within reason, or turns down the proposition. Ten per cent is the minimum overhead, he declares; a merchant, to go on, must have at least a 5% saving to reinvest. He's never been a dollar-swapper, he insists; if he can't show a profit, he's just kidding himself that he's in business.

Advertising and promotion is varied. Several times a year, Mr. Palmer gives away radios, ranges, and washers through arrangements with local movie houses. Moviegoers must fill out name cards giving information on appliances they now own, building up the store's prospect list.

Classified advertising on used bargains brings in more prospects. At least 60% of these prospects eventually buy new appliances, Mr. Palmer declares.

Almost no canvassing, as such, is done. Names gained in the theater promotions form the basis of a mailing list. Letters go out to this list first; then there's a telephone solicitation; and finally a personal call by one of the store's salesmen.

The four salesmen pair up to spend alternate days in and out of the store; so that they all have a chance to cash in on "drop-in" prospects. The whole town is their territory. Bonuses reward customers who turn in names of prospects who buy: $5 for refrigerators, $3 for ranges, $2 for washers.

$6,500 INVENTORY

Mr. Palmer keeps a continuous stock inventory of $6,500, well balanced at all times, and purchased on a 12 months' distribution basis. Ranges and washers are year-around items, with the slight summer bulge on refrigerator sales taking up some of the slack in range business during hot weather.

The stock turns three to four times a year, but never is there an acute shortage of any one of the five appliance lines handled. Having a full line to show prospects, Mr. Palmer believes, does much to provide a buying incentive.

To operate a real appliance business, this dealer believes, he must have $2,500 at the very least; $10,000 would allow for more operating flexibility. And the big thing, he insists, is to spread the appropriation not only among the "big five" appliance lines, but also over a number of nationally known lines for each appliance.

Some women want a certain make of refrigerator; nothing else will do. So Mr. Palmer believes in giving it to them. The good salesman sells human beings rather than lines, anyway, he says, and can show good points for any make handled.

SALES CONTESTS

Whether the season be dull or active, nothing so stimulates volume as a sales contest, Mr. Palmer finds. January and February are good radio months, so contests for this item, along with refrigerators. March and April stress refrigerators and ranges; May, June, and July contests push refrigerators and washers. August and September "mop up" refrigerators, with radios and washers in center-stage. October, November, and December concentrate on ranges and radios.

Salesmen ordinarily take their choice between cash and merchandise awards, and "clean up" drives on certain appliances may mean extra bonuses. Having a premium to work for adds just that little gambling touch that brings many sales to a head before each contest deadline that might otherwise dangle for months without being closed, Mr. Palmer declares.

Taking Store To Prospect By Means of Trailer Increases Dealer's Sales 90% In Year

EVANSTON, Ill. — Increase of 90% in sales of electric refrigerators, electric and gas ranges, and laundry equipment during the past year is credited by William J. Becker, Evanston Norge dealer, to use of an automobile trailer for bringing prospect and salesman together for demonstrations, with greater convenience for both.

Mr. Becker, who acquired his trailer in July, 1937, organized a three-man house-to-house sales crew, and sent the men on morning canvass calls in certain neighborhoods. Following them, completely equipped, was the trailer. When a salesman interested a prospect in one of the appliances, the trailer drew up in front of her home, and an immediate demonstration was given.

Sales took an immediate jump, due, says Mr. Becker, to the far greater number of prospects to whom it was possible to show the appliances by this method, compared with the former plan of trying to induce the housewife to visit the dealership's floor display.

"The day of waiting for business to come to your shop is on the wane," thinks Mr. Becker. "When I started in the music business in 1908, customers were expected to come into a store when they wanted anything. Nowadays, they expect the store to come to them—and the dealer who is most energetic in putting his goods right into the customer's hands, so to speak, makes the most sales."

Because it has no heating facilities, Mr. Becker retires the trailer for the winter late in October. Next spring, however, it will be back in use, he says.

By a simple but highly effective method, Mr. Becker also has worked up a gratifying business in the installation of Philco auto radios, which he sells.

After working many nights installing auto radios in his garage at home, Mr. Becker remodeled part of his store into a six-car garage and obtained local distributorship for Philco and Motorola auto sets. Next he gave a party for all local automobile distributors, at which he made the following proposition:

Becker would sell radios to auto dealers at the customary retailers' discount, and they would sell to new car purchasers or to car owners coming in for repairs—and recommend the dealership as an expert installer. For every installation job so obtained, Becker would pay the car dealer $1.

Obtaining competent auto radio installation is a problem in many communities, and Becker's business in that line took an immediate spurt. Today three men are kept busy in that department alone.

A Sales Booster in Both Places

AT THE STORE
It's good looking, but how do I know that it will give good service?
Well, for one thing, it's high-quality electrically—it's equipped with a G-E motor.
IN THE HOME
I like my refrigerator—it's economical and has never given any trouble.
Others have told me that about appliances bought from Church's—I'll go there for my new refrigerator.

A Convincing Argument

THE General Electric motor shown is for operating a domestic refrigerator. Let's take it apart and find out why it gives service that makes satisfied customers.

Begin with the automatic-belt-tightener base—a G-E development. It automatically maintains just enough belt tension to prevent slipping. As a result, belt and bearing life is prolonged, and the compressor-shaft packing is subjected to less strain. Now check the bearings—they have extra-large oil-storage capacity and require oiling but once a year. Consider next the parts that determine the motor life—the rotor, stator, and starting mechanism.

The cast-aluminum rotor is indestructible—it cannot become open-circuited or burn out. How long will it last? That's like asking the life of a fan blade, for the rotor proper has no wearing parts.

General Electric's method of stator construction was proved in actual field service on hundreds of motors before it was finally adopted—the real test of its correctness.

Starting switches have performed in life tests more than a million operations—a service life of twenty-five years on a refrigerator.

Service That Makes Sales

General Electric also has motors for other appliances, such as washers, oil burners, and stokers, and all meet the performance standards of the devices in which they are incorporated. Whenever an improvement in appliance design makes existing motors inadequate, G-E engineers build a new motor that is adequate. You can be sure that G-E motors on your appliances will do their part to please your customers. General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

Filing No. 8260 070-250

AIR CONDITIONING & REFRIGERATION NEWS

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Pride of Possession —A Lost Appeal?

TOO MUCH blame for the absurdly low prices on household refrigerators which prevailed during much of 1938 cannot be laid to the doorstep of any one division of the industry. Nearly every factor: manufacturers, distributors, and dealers of all varieties were caught with inventories at a time when they needed cash, and liquidation apparently seemed the only answer.

Nevertheless, as the year closes the industry must face the unpleasant fact that price-cutting has destroyed some of the pride which present and prospective purchasers of electric refrigerators have taken in their possession.

Major Appeal In Purchase Of Household Refrigerators

Everyone has heard tales of the proud families who have had their gleaming new refrigerators installed in the parlor, so that all might see how affluent they were. And any veteran salesman will testify to the fact that Pride of Possession was for a long time the major appeal in the purchase of an electric refrigerator.

That Pride of Possession is still as potent as formerly may now be subject to considerable doubt as a result of the fire-sale type of advertising and cut-price selling which made of the household refrigerator a merchandising football during the first half of the year.

Advertising Cheapness Destroys Pride of Ownership

Just as the radio lost a great measure of its Pride of Possession appeal when it became a dime-store and cut-rate drug store item, so has the household refrigerator lost caste when it became apparent to the nation-at-large that anybody could obtain one with a pocketfull of small change for a down payment, and a questionable credit rating.

The task of the industry now is not that of weeping over its lost feathers, but of seeking ways and means of regaining them. Pride of Possession is still one of the leading sales attributes any product can have; nor must it be abandoned as an industry grows older, as the automobile business can testify. It is an attribute which is worth a considerable price to regain.

Two Steps Which Can Be Taken

There would appear to be two steps which can be taken to regain this lost intangible: (1) improve the quality and desirability of the product; and (2) boost the price level.

On the testimony of dealers, salesmen, distributors, and manufacturers, household refrigeration is not the profitable business it once was. And there is almost unanimous agreement that a greater margin of profit is needed all along the line.

Worrying Over Chain Stores Has Disrupted the Industry

But, say those who are afraid to hike up the price schedules, how can we meet the mail order and chain store competition unless we can match their prices? The answer to that one is that you can probably never match their prices, and that the mail order houses are likely to get only a certain portion of the business, anyway.

Because they are reaching into a certain market with price merchandise is no reason why the rest of the industry must do a profitless business on the remainder of the volume. Experience with other products will show that price is a factor in only a certain percentage of sales, that the mail order houses will probably never get the majority of the business despite their price differential, and that old-fashioned sales effort on nationally advertised products will continue to get the bulk of the sales.

Nobody Has 'Divine Right' To Business

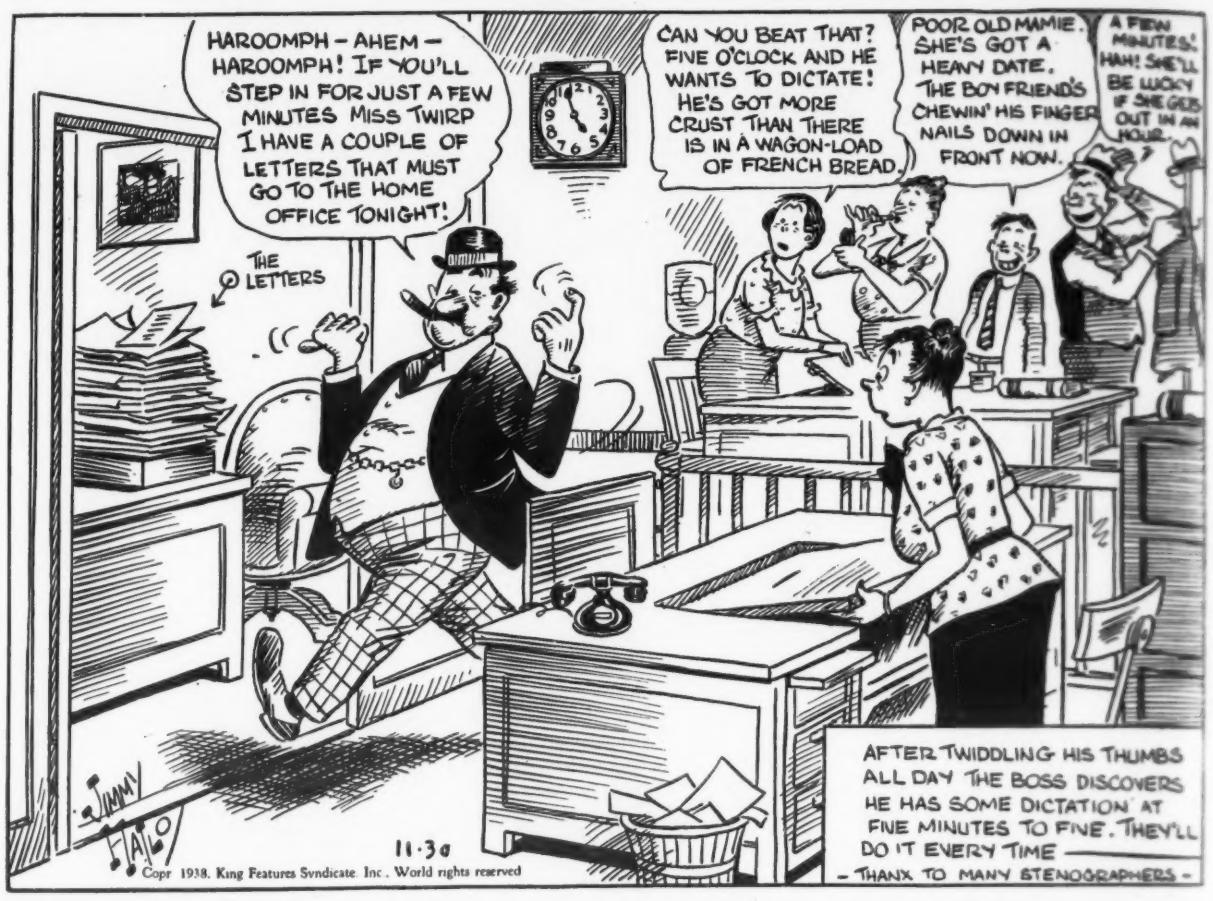
As one executive puts it, "the chief trouble with this industry is that many elements in it feel they have a divine right to all the business." Let the mail order people have their share of it, he argues. The rest of the industry can still do a *profitable* business on the volume which they can obtain.

With the immediately succeeding years, enormous numbers of electric refrigerators will become ready for replacement. The majority of these were sold on a Pride of Possession basis, and can be replaced on that basis, if the industry refuses to allow the present buyers' market to continue.

On the other hand, if the wild scramble for volume at any price continues, every prospect, whether or not he is a present owner, will become a bargain hunter, and instead of getting better, the business is likely to get worse.

From this standpoint, the 1939 selling season would appear to be a crucial one. There is still time for the industry to regain control of its sales and price schedules—a step which must be taken if household refrigeration is to be a profitable business and a respectable one, a business which will be worthy of the best efforts of the highest type of merchandisers.

They'll Do It Every Time . . . By Jimmy Hatlo


HAROOMPH – AHEM – HAROOMPH! IF YOU'LL STEP IN FOR JUST A FEW MINUTES MISS TWIRP I HAVE A COUPLE OF LETTERS THAT MUST GO TO THE HOME OFFICE TONIGHT!
THE LETTERS
CAN YOU BEAT THAT? FIVE O'CLOCK AND HE WANTS TO DICTATE! HE'S GOT MORE CRUST THAN THERE IS IN A WAGON-LOAD OF FRENCH BREAD.
POOR OLD MAMIE. SHE'S GOT A HEAVY DATE. THE BOY FRIEND'S CHEWIN' HIS FINGER NAILS DOWN IN FRONT NOW.
A FEW MINUTES! HAH! SHE'LL BE LUCKY IF SHE GETS OUT IN AN HOUR.
JIMMY HATLO
11-30
Copr 1938, King Features Syndicate, Inc., World rights reserved.
AFTER TWIDDLING HIS THUMBS ALL DAY THE BOSS DISCOVERS HE HAS SOME DICTATION AT FIVE MINUTES TO FIVE. THEY'LL DO IT EVERY TIME
– THANX TO MANY STENOGRAPHERS –

LETTERS

Air-Conditioner Dealer Group Attracts Interest

Eichler Heating Co.
2125 Locust St.
St. Louis, Mo.

Editor:

We are the local St. Louis distributor for Frigidaire air conditioning.

As contractors in this industry we are anxious to know more about the formation of the National Association referred to in your Nov. 16 issue.

Please have full details sent to us regarding the proposed Detroit meeting on Nov. 28 and the Chicago meeting on Jan. 16-19.

The writer was president of the Heating, Piping & Air Conditioning Contractors National Association 1934-35 and is very much interested in the future of the air-conditioning industry.

J. LAWRENCE DENEILLE

Answer: A report of what transpired at the meeting Nov. 28 in Detroit was published in the Nov. 30 issue of the NEWS. Further information concerning the proposed association will be found on page 1 of this issue.

Delco-Frigidaire Not Included In Stoker List

Delco-Frigidaire Conditioning Division
General Motors Sales Corp.
Dayton, Ohio

Editor:

On page 16 of your Nov. 23 issue, you list the principal stoker manufacturers, but through oversight, no doubt, you failed to include us.

We are wondering if you might care to issue an addendum to this listing in some future issue, including the Delco stoker at that time.

C. J. LINXWEILER,
Stoker Department

Interest In Refrigeration Is Growing In Scotland

1034 Maryhill Road
Glasgow, N.W., Scotland

Sirs:

I thank you for the sample copy of AIR CONDITIONING & REFRIGERATION NEWS, which I received a few days ago.

Apart from the fact that this was your 500th issue, I must say that it is easily the finest refrigeration journal that I have read, being the only one that really covers the practical side of installation and service work.

I enclose British M. O. No. TA46245 for $6.00, and would like you if at all possible to start my subscription from the week following your 500th issue (Oct. 26), by sending me on the back numbers to date, so that I can follow up the commercial service articles from then on.

As stated in your introductory offer, I have decided that the Directory No. D-1 would be the most useful to me meantime, and would be pleased to have you send me on a copy.

I note in the "Letters to Editor" column that mention is made of a Red Book Catalog, and if it is still available I would certainly like to have a copy, any cost for which I would be pleased to remit.

ARTHUR S. SUTHERLAND

McGovern Corrects Notes on Dryers

E. I. du Pont de Nemours & Co., Inc.
The R. & H. Chemicals Dept.
Wilmington, Del.

Editor:

You covered the ground pretty well on my comment on V. E. Hall's paper on drying agents which you published in the Nov. 16 issue.

However, I believe there is one point that might create a misunderstanding. The use of alkaline drying agents, such as calcium oxide, for refrigerating systems is claimed by a patent issued to the Chicago Pneumatic Tool Co. To the best of my knowledge, calcium oxide and barium oxide are not manufactured under patents held by Chicago Pneumatic Tool Co., as stated in your writeup in the Nov. 16 issue.

E. W. MCGOVERN,
Chlorine Products Division

Editor's Note: The text of Mr. McGovern's written comment appears on page 15 of this issue.

Even the Hotels Are Using It

395 Broadway
New York City

Sirs:

Find enclosed a Money Order for 60 cents which with the credit of 40 cents I still have coming to me, will cover the cost of Manual No. 4.

I find the manuals very helpful in working on units that have been discontinued by the manufacturer. The book on specifications up to 1936 is one of the most valuable books that I have ever been able to get hold of.

Mr. Vitalie of the Vanderbilt Hotel Corp. showed me one of the Red Books you put out. Would it be possible for me to get one of these? The list of many dealers in refrigeration equipment and air-conditioning supplies is important for anyone going in that line of work.

Thanking you for your splendid service, I remain

CLAYTON B. HOWK

Another Vote For the Soda Fountain Data

E. J. Ford
Refrigeration Service and
Motor Rewinding
210 Elliott St.
Kewanee, Ill.

Sirs:

Enclosed find money order for $4.00 to cover by subscription to the AIR CONDITIONING & REFRIGERATION NEWS. Also send me a copy of the 1938 Refrigeration & Air Conditioning Directory.

If at all possible I would like to have my subscription to start with the Oct. 26 issue so that I could receive these back issues. If this is not possible then send me the back issues and bill me for them.

The sample copy that you sent me, Oct. 19 issue, is the first issue that I have ever received of the NEWS, although I have nearly all of your service manuals.

I would like to receive all copies containing the articles on servicing soda fountains, etc.

E. J. FORD

An Educational Trend

Board of Education
of the
City of St. Louis
Office of the Superintendent
Of Instruction
Oct. 15, 1938

Sirs:

I have today authorized the use of your service manuals in the Hadley Vocational Evening School. The teacher of one class in refrigeration has brought your manual No. 1 to our attention asking permission to provide copies for the pupils, and he is making arrangements through some firm to supply them. I have authorized him to sell the manuals which he has obtained to the pupils at a cost of $1.00 each, in order to save time in bringing them into use.

F. J. JEFFREY,
Assistant Superintendent

Extension Division
The University of Texas
Harlingen, Tex.

Sirs:

We have 150 teachers and school executives enrolled in 10 field extension teaching centers studying educational and vocational guidance. We are trying to give realistic guidance to some 6,000 youths located in 15 south Texas counties and we are utilizing as many sources as possible.

You would be rendering these young folks a real service if you would send us some sample copies of your magazine to be used by vocational counselors.

Thank you for your assistance.

JAMES KNIGHT,
Asso. Prof. Ed. Psych.

Adult Education Program
County Court House
Kankakee, Ill.

F. M. Cockrell:

Please be informed that I will assume freight or truck charges on two or three copies each of 15 or 20 issues of AIR CONDITIONING & REFRIGERATION NEWS.

May I at this time again express my appreciation for your splendid cooperation? Thank you.

FRANK R. LOCKWOOD,
Teacher, Adult Education

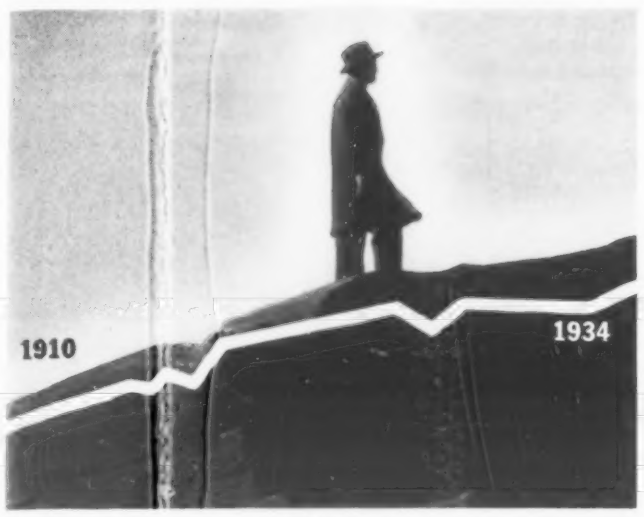
625 South St.
Elizabeth, N. J.

Sirs:

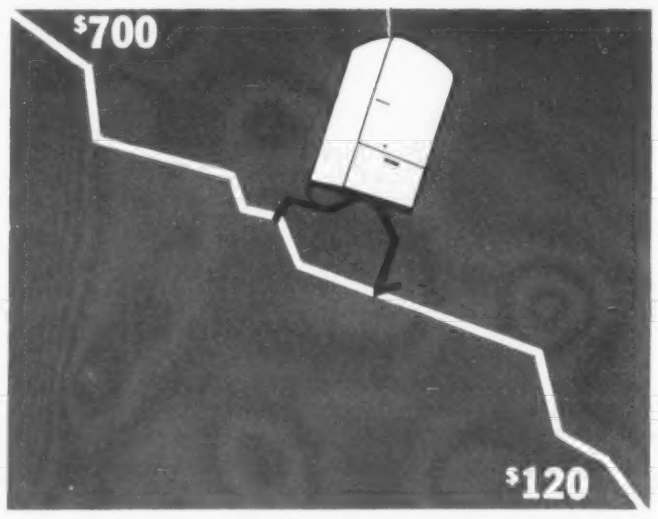
While attending the Utilities Engineering Institute as a student in air conditioning and refrigeration, your AIR CONDITIONING & REFRIGERATION NEWS was in the class room for the students' benefit. Realizing the value and benefit the NEWS could be to students, I decided to get this NEWS.

Enclosed you will find a money order for a subscription to the NEWS. Will be waiting for my first copy of the NEWS.

JOHN BOSS



Every ten years, *a year of added life is won for us*, through better living and medical conditions. Physicians credit electrical refrigeration with changing America's eating habits from unhealthful, heavy foods to well-balanced diet.



Ever-lower prices have brought the luxury of electrical home refrigeration within the reach of every wage-earner. Contrast the cost of the first Kelvinator with present prices, for a Kelvinator many times more efficient.

Unmeasured millions of dollars saved every year on food which would otherwise be spoiled. Electrical refrigeration has introduced a new and better way of marketing and of keeping perishable foods constantly safe.

Will Be on Kelvinator!

Kelvinator Invites Every Refrigerator Dealer in America to Share in the Golden Opportunity of the Silver Jubilee

NEW SILVER JUBILEE KELVINATORS TO BE SHOWN JANUARY 2ND

TODAY, every electrical refrigerator salesman and dealer can be proud of the part he's played in making this a finer, happier world. The pictures above tell the story that is so evident today on the 25th anniversary of the electric refrigerator in the American home.

And it is our greatest source of pride that in 1914 Kelvinator built the first successful electric refrigerator for the home . . . and was the first to bring into being this great new industry.

Naturally, on Kelvinator's 25th anniversary, you have every right to expect outstanding models, in keeping with the Silver Jubilee occasion. And you can, for this year the new line will go far and above your greatest expectations. This year we sincerely believe we have produced a series of Kelvinators that will be acclaimed by the trade and the home owner alike.

For these Silver Jubilee models have been planned to show what 25 years of experience can do. From pedestal to top they are completely new—completely re-designed—the most beautiful refrigerators ever offered to the public.

Inside is a new cold-making story with features certain to add more laurels to Kelvinator's title of Champion Ice Maker. There's a new interior arrangement with added conveniences that will put the teeth in any sales talk.

And planned to send you off on a running start for profits is the new advertising and merchandising campaign that will sell the Silver Jubilee program to the public . . . just as Kelvinator's "Sales Mean Jobs" sent this nation into a buying surge. This is a campaign planned to start people thinking about electrical refrigeration again . . . not only in terms of money they can save . . . but also in terms of luxuries they can afford. It is the ideal *dealer's campaign*.

This year we are confident that people who have never bought before will choose Kelvinator as their first electric refrigerator. And this year we expect hundreds of thousands of refrigerator owners to come in and ask about trade-ins on the new Silver Jubilee models. This year we expect so much because the new Kelvinators are so far ahead of anything you'll see this year.

We urge you to take advantage of this opportunity of a lifetime—to include Kelvinator in your 1939 plans. Be the first to feature on your floor this new line of Silver Jubilee models . . . and share not only the spotlight but the profits with us. KELVINATOR, Division of Nash-Kelvinator Corp., Detroit, Mich.

ON JANUARY 2ND A MESSAGE FROM

H. W. Burrett

Vice-President in Charge of Sales for Kelvinator—Division of Nash-Kelvinator Corporation

He will make an announcement of vital, personal interest to retail salesmen and to dealers in electrical appliances. This announcement will affect the net profits of dealers and will have a lasting influence upon the earning power and the business future of retail salesmen.

The Silver Jubilee KELVINATOR

GET IN THE SPOTLIGHT WITH KELVINATOR!

Commercial Refrigeration

New Kold-Hold Booklet Outlines Plate System

LANSING, Mich.—Extensive and detailed information on the construction, operation, and application of the Kold-Hold cooling unit is offered in a colorful new booklet just issued by Kold-Hold Mfg. Co. here.

Profusely illustrated with both photographs and diagrams, this new catalog (No. 39 in the Kold-Hold list) describes the refrigerating plate which is the heart of the Kold-Hold system, with cut-away photographs showing the construction of this plate and the way in which it is tested before being shipped. A diagram is used to illustrate the Kold-Hold cycle.

Section on truck refrigeration has several sample installations pictured and diagrammed, including installations for low temperature as well as high temperature applications.

Occupying the center portion of the booklet is a section on the new Kold-Hold cabinets for ice cream and frozen foods, and on conversion units for use on cabinets using other methods of refrigeration. Use of the Kold-Hold plates for such applications as ice cream hardening, beverage cooling, chilling of salads and sea foods, and locker plant refrigeration also is described.

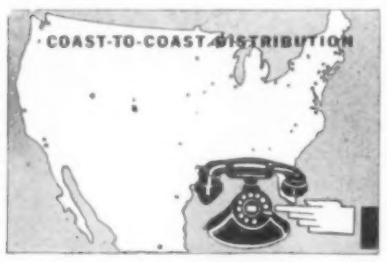
The catalog includes several pages of engineering data.

Omaha York Co. Submits Low Bid on Prison Job

LINCOLN, Neb.—York Ice Machinery Co. of Omaha submitted the low bid of $6,150 to the state board of control for refrigeration equipment to be installed at the Genoa prison farm packing plant. Plant refrigeration equipment recently was destroyed by fire.

OPERATES AT POSITIVE PRESSURES ... EVEN AT SUB-ZERO TEMPERATURES

ARTIC makes it possible to get temperatures down to —10.65° F. without going into vacuum on the low side. This prevents entrance of air and moisture—another reason why ARTIC is the Preferred Refrigerant for the necessary low temperatures now required in ice cream cabinets, household and commercial units. Write for complete technical information.



ARTIC—*the Preferred Methyl Chloride for Service Work*

DU PONT

E. I. du Pont de Nemours & Co., Inc.
The R. & H. Chemicals Dept., Wilmington, Del.

Streamlining, Updraft Cooling Keynotes of Sherer-Gillett Line

MARSHALL, Mich. — Modern streamlined styling and an updraft cooling system consisting of fan, coils, and diffuser distinguish the new line of reach-in refrigerators just announced by Sherer-Gillett Co. here.

Air is drawn in at the top of these refrigerators, and is diffused throughout the bottom of the box after having been cooled and dehumidified while passing through the coil compartment. Then the air gradually floats upwards and commences the cooling cycle all over again.

This system of refrigeration is said to result in maintenance of more even temperatures throughout the various levels of the box, and to increase the relative humidity, a decidedly advantageous factor in preservation of unpackaged foodstuffs.

Absence of extraneous decoration and use of radius corners in conformity with the Sherer line of refrigerated display cases and walk-in coolers mark the design of the new units. Hardware on these refrigerators has been chosen to conform with the refrigerators' new, smooth lines.

Known as No. 30, No. 45, and No. 70, the three new units are said to possess a flexibility which enables the salesman to fit the refrigerator to the needs of individual users.

No. 30 is designed for either self-contained or remote installation of the condensing unit, and glazed doors may be had in place of the solid ones. On Nos. 45 and 70, either glazed or solid doors are available, and a choice of door arrangement also is offered.

The case may be obtained with two door openings 29¾ inches deep, or one door opening 66 inches deep. The larger doors make the section usable for bulky objects, such as large pieces of meat, rails and meat hooks being provided for that special purpose.

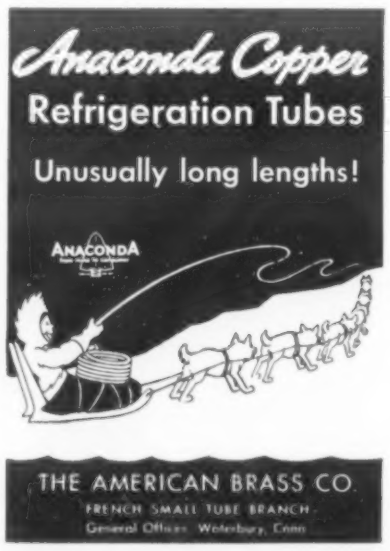
K. D. Zenkere is sales manager of the company.

Refrigerated Counter 55 Ft. In Length Installed In Buenos Aires

BUENOS AIRES, Argentina—More than 55 feet of counter, fountainette, and display case equipment has been installed in the cafeteria of the new Y.M.C.A. building here by Cia. Westinghouse Electric International, S.A. of Buenos Aires, distributor.

Refrigeration for service fountainette consists of one six-can ice cream storage cabinet, a milk cooling can, a cooling can for Chantilly cream, cooling equipment for soda and water, and a cooler for syrup jars and pumps.

A Westinghouse AFR-100-s condensing unit provides refrigeration for all these units. In addition, five individual refrigerated display cases operate with a 75-FL compressor.



Temprite's Automatic Beer Line Valve Is Designed To Correct 'Morning Beer' Dispensing Problem

DETROIT—An automatic beer line temperature valve, designed to avoid dispensing troubles by keeping beer in the line between keg and glass at a safe low temperature, recently has been announced by Temprite Products Corp.

The valve, model 845 in the Temprite line, has a list price of $7.50. It is designed to solve what is known in the trade as the "morning beer" problem, when higher temperatures in the beer line allow CO_2 gas to escape and form free gas.

When beer is next drawn, the undissolved gas passes through the cooler, and although the temperature of the beer may be properly reduced, the gas does not go back into solution, but appears as foam in the glass. Until the lines have been cleared of the undissolved gas, control of foam is lost. A small amount of gas in the lines may spoil several glasses of beer.

Increasing pressure on the keg will tend to reduce the separation of the gas in the beer line, but this has definite safety limits, and trouble can occur even under these conditions if the beer lines are warm enough, and if the beer is allowed to stand long enough in the warm lines.

Cooling the beer lines themselves is the solution to this problem which the new Temprite valve is said to make possible. Installation is as follows:

When the beer cooler is also used to cool water for the bar, the line leading from the cooler to the water faucet is cut and a tee inserted. A line either of copper or of block tin is connected to the tee, and is run parallel to the beer lines from the beer cooler to the point where they enter the pre-cooler. The lines then are bound together so they are in good contact, and the entire assembly is insulated with hair felt or other suitable insulation until the diameter of the package reaches 6 inches.

The beer line temperature valve is then connected to the end of the water line outside of the pre-cooler, and a line provided to carry the water away from the valve to the drain. Drain must be at a lower level than the valve, to prevent creating a pressure on the thermostatic element and a change in the temperature setting.

Valve is so designed that it acts automatically to limit the rate of flow. It is set at the factory to maintain a 55° temperature when used on a water supply having a pressure of 35 lbs. Water pressure higher than this will tend to raise the temperature setting. Where unusually high pressures are encountered, a pressure reducing valve is recommended, installed in the water supply line leading to the cooler.

Cold water from the cooler runs through the water line and chills the group of beer lines which is in contact with it. The valve, however, is provided with a thermostatic element, and as soon as the amount of cold water used is sufficient to reduce the temperature of the line, flow of water is stopped. As the line gradually warms, the valve will open again, but only enough to fill the line with cold water.

When beer is being used rapidly, no cooling of the line is required, and the valve remains closed. When the cooler is not used for long periods, such as overnight, the valve opens. But only from 2 to 4 gallons per hour are used, and this when the water in the cooler is not otherwise in use, it is pointed out.

Birds Eye Expansion Program Outlined

NEW YORK CITY—Building of a new quick-freezing plant in Florida, increasing of the output of quick-frozen beef, lamb, and pork products in Boston, and extending of the quick freezing of farm products are major steps in the expansion program for Birds Eye frosted foods now being carried out by Frosted Foods Sales Corp., division of General Foods Corp., as part of the parent company's $15,000,000 expansion plan.

This announcement was made by C. M. Chester, chairman of the board of General Foods Corp., as he explained in detail the company's huge investment in the future.

Mr. Chester said that the Birds Eye division is expanding its operations to meet the increasing public demand for quick-frozen foods.

"Other developments are still in the plan stage, including a processing plant for seafoods," Mr. Chester added after telling of Birds Eye's principal expansion steps.

Warren Opens Branch In Shreveport, La.

SHREVEPORT, La.—Warren Refrigerator Co., Inc., commercial refrigeration manufacturer of Beaumont, Tex., has opened a branch sales office at 1608 Texas St. here. The branch, which will serve 21 counties in Arkansas, Louisiana, and East Texas, is managed by Charles Culotta. R. M. White heads sales.

Conditioning Eliminates 'Bakery Taste' In Food, Bakers Are Informed

DENVER—The "bakery taste" in cakes and other products, caused by the odor of doughnut smoke being absorbed by the fresh pastery, can be entirely eliminated by adequate ventilation and air conditioning, L. H. Todhunter of the Western Bakers Supply Co. told the Rocky Mountain Bakers Association convention held here recently.

An experience in the elevator of a Denver department store started Mr. Todhunter on this line of thinking. He discovered that a strong odor of doughnuts in the crowded car came from a baker who had just come out of a doughnut kitchen.

The "doughnut smoke" odor was so strong that a woman in the elevator commented on it to her companion. Mr. Todhunter reasoned that if wearing apparel would absorb the doughnut odor to that extent, freshly baked cakes would certainly take on the same odor. Experiment has convinced him that his theory is correct.

According to Mr. Todhunter, a cake absorbs bakery odors in the same way that a sponge absorbs water.

"We all know what happens if you leave an uncovered bottle of milk in the refrigerator with a cut cantaloupe," he said. "The same odor absorbtion which takes place in milk occurs in a fresh cake.

"If this is true, no baker can get along without adequate ventilation. I believe that the air in the bakery should be changed every three minutes, and that adequate hoods and ventilating fans should be used to remove excessive smoke."

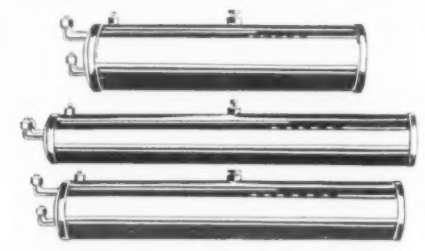
Powers Heads Century Sales In Southwest

ST. LOUIS—Fred Powers recently has been appointed regional sales manager of the southwest zone for Century Electric Co., manufacturer of motors and generators with headquarters here.

Mr. Powers formerly managed the truck refrigeration division of Century, which has charge of sales of Century Whitaker-Upp power systems for truck body refrigeration.

KRAMER

SHELL and FIN TUBE CONDENSERS
Combination of Water Cooled Condenser and Liquid Receiver



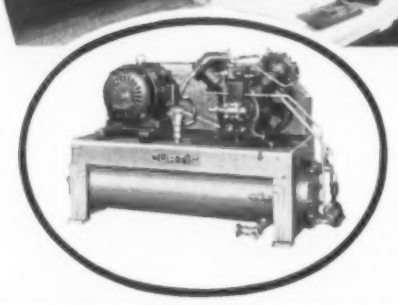
KRAMER TRENTON AUTO RADIATOR WORKS TRENTON, N. J.

Why Curtis is the Extra Value Line

The Engineering Department

One of the factors that has contributed so much to the outstanding position of Curtis in the industry is the Curtis Engineering Department. Here are developed the engineering features that provide the background for the extra values incorporated in Curtis equipment; here Curtis pioneers many new developments in the air conditioning and refrigeration field.

Many of the improvements in design and construction that result in the exceptionally long life, high efficiency and trouble-free performance of Curtis Condensing Units have originated in the extensive Engineering Department of the Curtis plant.



At left—The Curtis 15 H.P. Shell and Tube Condensing Unit.

CURTIS REFRIGERATION
AIR CONDITIONING and COMMERCIAL
"Builders of Condensing Units Since 1922"

CURTIS REFRIGERATING MACHINE CO., 1912 Kienlen Ave., St. Louis, Mo.
Division of Curtis Manufacturing Company

Profitable Sales Ideas

All-Around Salesman Better Producer All Year In Small Community, Dealer Says

READING, Pa.—While the salesman who specializes on electric refrigerators may sell more units than the man who sells three or four types of appliances, the "all-around" salesman will show a better yearly income, particularly in a small community, believes Paul Bear, appliance sales manager of Pomeroy's here.

"We have definitely determined that it is not advisable for a store of our size to have a separate selling staff for each type of major appliance," Mr. Bear stated.

"At one time we had four separate selling organizations, one each for refrigerators, washers, radios, and cleaners. Our experience indicates that the disadvantages are greater than the advantages. Such a plan may be more desirable for stores in large metropolitan cities, but it doesn't seem to fit the store in the smaller city."

MUST CONSIDER TURNOVER

One of the first factors to consider, Mr. Bear believes, is the turnover of salesmen. With four separate sales organizations, each limited to the selling of one type of appliance, a more rapid turnover of salesmen must be anticipated than in the organization where salesmen are permitted to sell any type of appliance. He has found that the attitude of the average salesman is that his earnings are limited under this plan. Regardless of the amount of specialized instruction he receives, the salesman wants to take advantage of every selling opportunity to increase his income. If one store does not give him this opportunity, he is sure to find a firm that will, Mr. Bear contends.

"I do not doubt that the man who specializes on refrigerators will sell more refrigeration units than the man who sells four major appliances," he continued. "But I have found that his earnings will not reach the high monthly average throughout the year that is attained by the man who sells a considerable number of other home appliances."

Considering the seasonal factor, this dealer points out the fact that despite sales effort and promotional activity there are certain seasons when some types of appliances are hard to sell.

He maintains that a salesman should be given the opportunity to maintain a fair average income from month to month, instead of trying to overcome discouragement with "pep talks" when sales are lagging on a certain line. Ability to earn money, he feels, is the only thing that prevents salesmen from going to another organization.

"Much has been said about training salesmen to sell more than one type of appliance. If a man can be trained to sell refrigerators, why can't he be trained to sell washers, radios, or cleaners?" Mr. Bear asked. "If a man has the capacity to absorb enough selling information about one type of appliance, he surely will be able to do the same thing with another appliance. At least, we have found he can."

SALESMEN ALTERNATE

The store's salesmen alternate on inside and outside work. Best results were obtained from a system requiring salesmen working outside to make a certain number of back calls each day, and in addition to these back calls, they make at least 10 calls on prospects furnished from the store's files.

A report is required on every call, permitting no padding of call lists. When call lists are turned in, they are usually checked back on one or two names by calling up the prospects, who actually tell when a salesman called.

At one time the store was negligent in checking back on the call lists, and salesmen became careless. Business that could have been had was lost as a result.

STORE CHECKS UP

Checking back on one report, Mr. Bear telephoned to a prospect to inquire whether the salesman had called. "No," she replied, "I haven't seen him, and it will not do any good to call now, because I just bought a refrigerator from another store."

"It is not difficult to keep our files filled with the names of prospects," he continued. "Salesmen in the department obtain the names and addresses of shoppers who are interested. If a customer does not mention her name and address during the conversation with the salesman, he may casually remark that he believes we have a refrigerator in a neighbor's home. He may say, 'You're Mrs. Jones from Cherry St.,' and, in most cases, the woman will give her correct name and address."

Small-Margin Sales Are Passed Up By 'Choosy' Dealer Who Uses 5-Point Program To Show Profit

KANSAS CITY, Mo.—Passing up sales in order to show a profit may seem like a funny way to run an appliance business, but it's one of the main points in the merchandising creed of Floyd A. Palmer, manager of Palmer & Blue Electric Co. here.

Briefly stated, Mr. Palmer's five-point platform of procedure is as follows:

1. If a deal doesn't look good, he turns it down.
2. He invests 2½% of his gross profit in varied publicity.
3. His stock is balanced among five major appliances.
4. He sells a number of makes, rather than one.
5. He runs a sales contest every month, the year around.

25% GROSS PROFIT

If there isn't a 25% gross profit, a deal just isn't a deal to Mr. Palmer. He keeps trade-ins within reason, or turns down the proposition. Ten per cent is the minimum overhead, he declares; a merchant, to go on, must have at least a 5% saving to reinvest. He's never been a dollar-swapper, he insists; if he can't show a profit, he's just kidding himself that he's in business.

Advertising and promotion is varied. Several times a year, Mr. Palmer gives away radios, ranges, and washers through arrangements with local movie houses. Moviegoers must fill out name cards giving information on appliances they now own, building up the store's prospect list.

Classified advertising on used bargains brings in more prospects. At least 60% of these prospects eventually buy new appliances, Mr. Palmer declares.

Almost no canvassing, as such, is done. Names gained in the theater promotions form the basis of a mailing list. Letters go out to this list first; then there's a telephone solicitation; and finally a personal call by one of the store's salesmen.

The four salesmen pair up to spend alternate days in and out of the store; so that they all have a chance to cash in on "drop-in" prospects. The whole town is their territory. Bonuses reward customers who turn in names of prospects who buy: $5 for refrigerators, $3 for ranges, $2 for washers.

$6,500 INVENTORY

Mr. Palmer keeps a continuous stock inventory of $6,500, well balanced at all times, and purchased on a 12 months' distribution basis. Ranges and washers are year-around items, with the slight summer bulge on refrigerator sales taking up some of the slack in range business during hot weather.

The stock turns three to four times a year, but never is there an acute shortage of any one of the five appliance lines handled. Having a full line to show prospects, Mr. Palmer believes, does much to provide a buying incentive.

To operate a real appliance business, this dealer believes, he must have $2,500 at the very least; $10,000 would allow for more operating flexibility. And the big thing, he insists, is to spread the appropriation not only among the "big five" appliance lines, but also over a number of nationally known lines for each appliance.

Some women want a certain make of refrigerator; nothing else will do. So Mr. Palmer believes in giving it to them. The good salesman sells human beings rather than lines, anyway, he says, and can show good points for any make handled.

SALES CONTESTS

Whether the season be dull or active, nothing so stimulates volume as a sales contest, Mr. Palmer finds. January and February are good radio months, so contests for this item, along with refrigerators. March and April stress refrigerators and ranges; May, June, and July contests push refrigerators and washers. August and September "mop up" refrigerators, with radios and washers in center-stage. October, November, and December concentrate on ranges and radios.

Salesmen ordinarily take their choice between cash and merchandise awards, and "clean up" drives on certain appliances may mean extra bonuses. Having a premium to work for adds just that little gambling touch that brings many sales to a head before each contest deadline that might otherwise dangle for months without being closed, Mr. Palmer declares.

Taking Store To Prospect By Means of Trailer Increases Dealer's Sales 90% In Year

EVANSTON, Ill. — Increase of 90% in sales of electric refrigerators, electric and gas ranges, and laundry equipment during the past year is credited by William J. Becker, Evanston Norge dealer, to use of an automobile trailer for bringing prospect and salesman together for demonstrations, with greater convenience for both.

Mr. Becker, who acquired his trailer in July, 1937, organized a three-man house-to-house sales crew, and sent the men on morning canvass calls in certain neighborhoods. Following them, completely equipped, was the trailer. When a salesman interested a prospect in one of the appliances, the trailer drew up in front of her home, and an immediate demonstration was given.

Sales took an immediate jump, due, says Mr. Becker, to the far greater number of prospects to whom it was possible to show the appliances by this method, compared with the former plan of trying to induce the housewife to visit the dealership's floor display.

"The day of waiting for business to come to your shop is on the wane," thinks Mr. Becker. "When I started in the music business in 1908, customers were expected to come into a store when they wanted anything. Nowadays, they expect the store to come to them—and the dealer who is most energetic in putting his goods right into the customer's hands, so to speak, makes the most sales."

Because it has no heating facilities, Mr. Becker retires the trailer for the winter late in October. Next spring, however, it will be back in use, he says.

By a simple but highly effective method, Mr. Becker also has worked up a gratifying business in the installation of Philco auto radios, which he sells.

After working many nights installing auto radios in his garage at home, Mr. Becker remodeled part of his store into a six-car garage and obtained local distributorship for Philco and Motorola auto sets. Next he gave a party for all local automobile distributors, at which he made the following proposition:

Becker would sell radios to auto dealers at the customary retailers' discount, and they would sell to new car purchasers or to car owners coming in for repairs—and recommend the dealership as an expert installer. For every installation job so obtained, Becker would pay the car dealer $1.

Obtaining competent auto radio installation is a problem in many communities, and Becker's business in that line took an immediate spurt. Today three men are kept busy in that department alone.

A Sales Booster in Both Places

AT THE STORE
It's good looking, but how do I know that it will give good service?
Well, for one thing, it's high-quality electrically—it's equipped with a G-E motor.
IN THE HOME
I like my refrigerator—it's economical and has never given any trouble.
Others have told me that about appliances bought from Church's—I'll go there for my new refrigerator.

A Convincing Argument — *Service That Makes Sales*

THE General Electric motor shown is for operating a domestic refrigerator. Let's take it apart and find out why it gives service that makes satisfied customers.

Begin with the automatic-belt-tightener base—a G-E development. It automatically maintains just enough belt tension to prevent slipping. As a result, belt and bearing life is prolonged, and the compressor-shaft packing is subjected to less strain. Now check the bearings—they have extra-large oil-storage capacity and require oiling but once a year. Consider next the parts that determine the motor life—the rotor, stator, and starting mechanism.

The cast-aluminum rotor is indestructible—it cannot become open-circuited or burn out. How long will it last? That's like asking the life of a fan blade, for the rotor proper has no wearing parts.

General Electric's method of stator construction was proved in actual field service on hundreds of motors before it was finally adopted—the real test of its correctness.

Starting switches have performed in life tests more than a million operations—a service life of twenty-five years on a refrigerator.

General Electric also has motors for other appliances, such as washers, oil burners, and stokers, and all meet the performance standards of the devices in which they are incorporated. Whenever an improvement in appliance design makes existing motors inadequate, G-E engineers build a new motor that is adequate. You can be sure that G-E motors on your appliances will do their part to please your customers. General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

Filing No. 8260 070-250

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Pride of Possession —A Lost Appeal?

TOO MUCH blame for the absurdly low prices on household refrigerators which prevailed during much of 1938 cannot be laid to the doorstep of any one division of the industry. Nearly every factor: manufacturers, distributors, and dealers of all varieties were caught with inventories at a time when they needed cash, and liquidation apparently seemed the only answer.

Nevertheless, as the year closes the industry must face the unpleasant fact that price-cutting has destroyed some of the pride which present and prospective purchasers of electric refrigerators have taken in their possession.

Major Appeal In Purchase Of Household Refrigerators

Everyone has heard tales of the proud families who have had their gleaming new refrigerators installed in the parlor, so that all might see how affluent they were. And any veteran salesman will testify to the fact that Pride of Possession was for a long time the major appeal in the purchase of an electric refrigerator.

That Pride of Possession is still as potent as formerly may now be subject to considerable doubt as a result of the fire-sale type of advertising and cut-price selling which made of the household refrigerator a merchandising football during the first half of the year.

Advertising Cheapness Destroys Pride of Ownership

Just as the radio lost a great measure of its Pride of Possession appeal when it became a dime-store and cut-rate drug store item, so has the household refrigerator lost caste when it became apparent to the nation-at-large that anybody could obtain one with a pocketfull of small change for a down payment, and a questionable credit rating.

The task of the industry now is not that of weeping over its lost feathers, but of seeking ways and means of regaining them. Pride of Possession is still one of the leading sales attributes any product can have; nor must it be abandoned as an industry grows older, as the automobile business can testify. It is an attribute which is worth a considerable price to regain.

Two Steps Which Can Be Taken

There would appear to be two steps which can be taken to regain this lost intangible: (1) improve the quality and desirability of the product; and (2) boost the price level.

On the testimony of dealers, salesmen, distributors, and manufacturers, household refrigeration is not the profitable business it once was. And there is almost unanimous agreement that a greater margin of profit is needed all along the line.

Worrying Over Chain Stores Has Disrupted the Industry

But, say those who are afraid to hike up the price schedules, how can we meet the mail order and chain store competition unless we can match their prices? The answer to that one is that you can probably never match their prices, and that the mail order houses are likely to get only a certain portion of the business, anyway.

Because they are reaching into a certain market with price merchandise is no reason why the rest of the industry must do a profitless business on the remainder of the volume. Experience with other products will show that price is a factor in only a certain percentage of sales, that the mail order houses will probably never get the majority of the business despite their price differential, and that old-fashioned sales effort on nationally advertised products will continue to get the bulk of the sales.

Nobody Has 'Divine Right' To Business

As one executive puts it, "the chief trouble with this industry is that many elements in it feel they have a divine right to all the business." Let the mail order people have their share of it, he argues. The rest of the industry can still do a *profitable* business on the volume which they can obtain.

With the immediately succeeding years, enormous numbers of electric refrigerators will become ready for replacement. The majority of these were sold on a Pride of Possession basis, and can be replaced on that basis, if the industry refuses to allow the present buyers' market to continue.

On the other hand, if the wild scramble for volume at any price continues, every prospect, whether or not he is a present owner, will become a bargain hunter, and instead of getting better, the business is likely to get worse.

From this standpoint, the 1939 selling season would appear to be a crucial one. There is still time for the industry to regain control of its sales and price schedules—a step which must be taken if household refrigeration is to be a profitable business and a respectable one, a business which will be worthy of the best efforts of the highest type of merchandisers.

They'll Do It Every Time . . . By Jimmy Hatlo

HAROOMPH – AHEM – HAROOMPH! IF YOU'LL STEP IN FOR JUST A FEW MINUTES MISS TWIRP I HAVE A COUPLE OF LETTERS THAT MUST GO TO THE HOME OFFICE TONIGHT!
THE LETTERS
CAN YOU BEAT THAT? FIVE O'CLOCK AND HE WANTS TO DICTATE! HE'S GOT MORE CRUST THAN THERE IS IN A WAGON-LOAD OF FRENCH BREAD.
POOR OLD MAMIE. SHE'S GOT A HEAVY DATE. THE BOY FRIEND'S CHEWIN' HIS FINGER NAILS DOWN IN FRONT NOW.
A FEW MINUTES! HAH! SHE'LL BE LUCKY IF SHE GETS OUT IN AN HOUR.
AFTER TWIDDLING HIS THUMBS ALL DAY THE BOSS DISCOVERS HE HAS SOME DICTATION AT FIVE MINUTES TO FIVE. THEY'LL DO IT EVERY TIME
– THANX TO MANY STENOGRAPHERS –
JIMMY HATLO
11-30
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LETTERS

Air-Conditioner Dealer Group Attracts Interest

Eichler Heating Co.
2125 Locust St.
St. Louis, Mo.

Editor:

We are the local St. Louis distributor for Frigidaire air conditioning.

As contractors in this industry we are anxious to know more about the formation of the National Association referred to in your Nov. 16 issue.

Please have full details sent to us regarding the proposed Detroit meeting on Nov. 28 and the Chicago meeting on Jan. 16-19.

The writer was president of the Heating, Piping & Air Conditioning Contractors National Association 1934-35 and is very much interested in the future of the air-conditioning industry.

J. LAWRENCE DENEILLE

Answer: A report of what transpired at the meeting Nov. 28 in Detroit was published in the Nov. 30 issue of the NEWS. Further information concerning the proposed association will be found on page 1 of this issue.

Delco-Frigidaire Not Included In Stoker List

Delco-Frigidaire Conditioning Division
General Motors Sales Corp.
Dayton, Ohio

Editor:

On page 16 of your Nov. 23 issue, you list the principal stoker manufacturers, but through oversight, no doubt, you failed to include us.

We are wondering if you might care to issue an addendum to this listing in some future issue, including the Delco stoker at that time.

C. J. LINXWEILER,
Stoker Department

Interest In Refrigeration Is Growing In Scotland

1034 Maryhill Road
Glasgow, N.W., Scotland

Sirs:

I thank you for the sample copy of AIR CONDITIONING & REFRIGERATION NEWS, which I received a few days ago.

Apart from the fact that this was your 500th issue, I must say that it is easily the finest refrigeration journal that I have read, being the only one that really covers the practical side of installation and service work.

I enclose British M. O. No. TA46245 for $6.00, and would like you if at all possible to start my subscription from the week following your 500th issue (Oct. 26), by sending me on the back numbers to date, so that I can follow up the commercial service articles from then on.

As stated in your introductory offer, I have decided that the Directory No. D-1 would be the most useful to me meantime, and would be pleased to have you send me on a copy.

I note in the "Letters to Editor" column that mention is made of a Red Book Catalog, and if it is still available I would certainly like to have a copy, any cost for which I would be pleased to remit.

ARTHUR S. SUTHERLAND

McGovern Corrects Notes on Dryers

E. I. du Pont de Nemours & Co., Inc.
The R. & H. Chemicals Dept.
Wilmington, Del.

Editor:

You covered the ground pretty well on my comment on V. E. Hall's paper on drying agents which you published in the Nov. 16 issue.

However, I believe there is one point that might create a misunderstanding. The use of alkaline drying agents, such as calcium oxide, for refrigerating systems is claimed by a patent issued to the Chicago Pneumatic Tool Co. To the best of my knowledge, calcium oxide and barium oxide are not manufactured under patents held by Chicago Pneumatic Tool Co., as stated in your writeup in the Nov. 16 issue.

E. W. MCGOVERN,
Chlorine Products Division

Editor's Note: The text of Mr. McGovern's written comment appears on page 15 of this issue.

Even the Hotels Are Using It

395 Broadway
New York City

Sirs:

Find enclosed a Money Order for 60 cents which with the credit of 40 cents I still have coming to me, will cover the cost of Manual No. 4.

I find the manuals very helpful in working on units that have been discontinued by the manufacturer. The book on specifications up to 1936 is one of the most valuable books that I have ever been able to get hold of.

Mr. Vitalie of the Vanderbilt Hotel Corp. showed me one of the Red Books you put out. Would it be possible for me to get one of these? The list of many dealers in refrigeration equipment and air-conditioning supplies is important for anyone going in that line of work.

Thanking you for your splendid service, I remain

CLAYTON B. HOWK

Another Vote For the Soda Fountain Data

E. J. Ford
Refrigeration Service and
Motor Rewinding
210 Elliott St.
Kewanee, Ill.

Sirs:

Enclosed find money order for $4.00 to cover by subscription to the AIR CONDITIONING & REFRIGERATION NEWS. Also send me a copy of the 1938 Refrigeration & Air Conditioning Directory.

If at all possible I would like to have my subscription to start with the Oct. 26 issue so that I could receive these back issues. If this is not possible then send me the back issues and bill me for them.

The sample copy that you sent me, Oct. 19 issue, is the first issue that I have ever received of the NEWS, although I have nearly all of your service manuals.

I would like to receive all copies containing the articles on servicing soda fountains, etc.

E. J. FORD

An Educational Trend

Board of Education
of the
City of St. Louis
Office of the Superintendent
Of Instruction
Oct. 15, 1938

Sirs:

I have today authorized the use of your service manuals in the Hadley Vocational Evening School. The teacher of one class in refrigeration has brought your manual No. 1 to our attention asking permission to provide copies for the pupils, and he is making arrangements through some firm to supply them. I have authorized him to sell the manuals which he has obtained to the pupils at a cost of $1.00 each, in order to save time in bringing them into use.

F. J. JEFFREY,
Assistant Superintendent

Extension Division
The University of Texas
Harlingen, Tex.

Sirs:

We have 150 teachers and school executives enrolled in 10 field extension teaching centers studying educational and vocational guidance. We are trying to give realistic guidance to some 6,000 youths located in 15 south Texas counties and we are utilizing as many sources as possible.

You would be rendering these young folks a real service if you would send us some sample copies of your magazine to be used by vocational counselors.

Thank you for your assistance.

JAMES KNIGHT
Asso. Prof. Ed. Psych.

Adult Education Program
County Court House
Kankakee, Ill.

F. M. Cockrell:

Please be informed that I will assume freight or truck charges on two or three copies each of 15 or 20 issues of AIR CONDITIONING & REFRIGERATION NEWS.

May I at this time again express my appreciation for your splendid cooperation? Thank you.

FRANK R. LOCKWOOD
Teacher, Adult Education

625 South St.
Elizabeth, N. J.

Sirs:

While attending the Utilities Engineering Institute as a student in air conditioning and refrigeration, your AIR CONDITIONING & REFRIGERATION NEWS was in the class room for the students' benefit. Realizing the value and benefit the NEWS could be to students, I decided to get this NEWS.

Enclosed you will find a money order for a subscription to the NEWS. Will be waiting for my first copy of the NEWS.

JOHN BOROS

Major Appliances

New G-E Range Is Sized For Use In the Small Apartment Kitchen

CLEVELAND — For use in the pocket-size apartment kitchen or in similar applications where compactness is a desirability if not a necessity, a new electric range only 19½ inches wide has been produced by General Electric Co.'s specialty appliance division.

Known as the "Aurora," this new range boasts an extra large automatic oven and three Calrod surface units, one of which is a five-heat unit. The range is built for installation flush against the wall and adjacent to or between cabinets, so no external pipes, hoods, or vents are needed.

A front switch panel places the streamlined buttons within easy reach. An oven pilot light on the right of the switches shows when the oven has reached the desired temperature. On the other side of the switch panel is a receptacle for such small appliances as toaster, coffee maker, etc. The porcelain enameled drip tray has a chromium plated front and black Textolite pull knobs.

The oven door does not open past the range frame, making possible a built-in installation. A specially designed vent is located in the oven door to regulate and discharge any excess vapor, thus eliminating stained kitchen walls. The oven itself, insulated on all sides, has a fast 3,000-watt open-coil heating unit. A direct-acting oven thermostat maintains uniform temperature.

A speed broiler compartment is located under the oven unit. Corners of the oven are rounded; shelves are adjustable, one being reversible. A lock-stop prevents tipping.

The oven-temperature control is located on top of the range. An automatic all-electric self-starting oven timer is available as optional equipment.

The three surface units are rated at 2,100 watts, 1,300 watts, and 1,200 watts, respectively. The range is equipped with movable pans under each of the three surface units.

The range is of one-piece solid seamless steel construction, finished with acid-resistant porcelain enamel. It is completely armored, no live parts being exposed. Unitop of Monel metal is available at extra cost on special order.

1939 Easy Line Shown To Western Dealers

SAN FRANCISCO—F. S. Fenton, Jr., divisional sales manager for 11 western states, presented the 1939 line of Easy washers and ironers at a dinner meeting held Nov. 2 by the Easy Washing Machine Corp. in the auditorium of Western Merchandise Mart, where divisional headquarters are located.

Booklet For Promotion Of Kitchen Prepared For Edison Institute

CHICAGO—A booklet on the modern all-electric kitchen has been prepared for Edison Electric Institute by the Manz Corp. of this city, it was announced by Walter J. Dailey, vice president of the Manz printing organization.

Illustrated in color, the booklet fully describes the advantages of the all-electric kitchen. Having the theme of the kitchen as a "home office," the features of time, economy, cleanliness, and comfort as electrical dividends are emphasized.

Range, refrigerator, and water heater are given separate treatment, and improvements said to release the housewife from kitchen drudgery are brought out. Pictures showing ideal layouts further illustrate the completely planned kitchens.

Approached from a woman's point of view, both pictures and explanations are aimed at convincing the housewife of the advantages in convenience and economy to be enjoyed in preparing meals electrically.

To aid in planning the all-electric kitchen, there is included diagrams and advice for the placing of all equipment and shelf space.

Smaller appliances to complete the kitchen and aid in the preparation of meals are described, and their small cost and effectiveness stressed. Toaster, clock mixer, radio, roaster, coffee maker, and ventilator are included in this group.

Complete all-electric kitchens of Westinghouse, Hotpoint, and General Electric are used in the color illustrations.

Workability of a suggested purchase-by-savings plan suggests a way to easy ownership of a well-organized all-electric kitchen.

Vacuum Cleaner Sales Keep Up Rise In October

CLEVELAND—According to a report made by C. G. Frantz, executive secretary of the Vacuum Cleaner Manufacturers' Association, household electric vacuum cleaner sales in October marked the third consecutive month of a continued upswing. The sales during October totaled 119,805, as compared to 102,014 in September and 90,557 in August.

The industry's sales for the 10 months of this year, 1,060,214, are 27% below the sales during the same period last year, but the gap is narrowing steadily as the sales for October were only 8.7% behind those of October, 1937.

The report also reveals that the buying is largely in the upper price levels, with $59.36 as the average price paid this year for floor models, which make up the bulk of industry's business, compared to $55.30, the average price in the first 10 months of last year.

Television Converters Needed For Present Radios, Gubb Says

PHILADELPHIA—"No radio receivers sold today are designed to receive television sound signals directly, without a converter of some sort, either separate or incorporated in the television picture receiver," Larry E. Gubb, president, Philco Radio & Television Corp., has declared, "and no such units are likely to be sold in the near future."

Attempting to clear up a controversy which has been disturbing both the radio trade and the buying public since the appearance of certain misleading newspaper articles, Mr. Gubb pointed out that television sound signals are broadcast on frequencies of from 44 to 108 megacycles. No commercial receivers available, he said, are capable of receiving signals on frequencies much higher than 22 megacycles.

"But when television does come," Mr. Gubb stated, "converters can easily be made and sold which will change the television sound frequencies into lower frequencies receivable by most of the better American and foreign sets now being used or offered for sale.

"The most convenient conversion frequency will be between 8 and 17 megacycles, because the sound intermediate frequency used in television receivers will be within that frequency range.

"If this frequency is used, no separate converter will be necessary, as a television receiver could be offered for sale using the same frequency. The receiver would feed the picture signal to the picture tube in the regular way, but would feed the converted sound signals to two terminals which could be connected by wires to the antenna and ground of any good radio having either a 5.8 to 18 megacycle band or a 7 to 22 megacycle band.

"The user could tune the radio to whatever predetermined frequency between 8 and 17 megacycles is used and receive the television sound signal in perfect synchronization with the picture signal on his receiver.

Vogel Studies Progress Of Television In Europe

NEW YORK CITY—E. H. Vogel, manager of the radio division of General Electric Co., recently sailed for Europe for the purpose of studying television facilities, developments, and experience abroad, particularly in England, France, and Germany.

He expects to be gone six weeks, during which time he will not only investigate transmitting and receiving equipment but also will discuss commercial television experience and plans with various European agencies and G-E's affiliated companies.

"We are not primarily interested at this time in engineering or scientific developments related to television," Mr. Vogel declared before his departure. "What we want to know now is, for instance, how British audiences react, how television is set up economically, both for transmitting and receiving equipment, and what are its effects on radio and motion pictures."

3 New Radio Models & Combination Shown To Crosley Dealers

CINCINNATI—Three new radio models and a radio-phonograph combination are now being shown by Crosley distributors to dealers throughout the country. Two vanity models and a console have been added to the radio line, the company announces.

New vanity model, listing at $9.99, has a five-tube TRF circuit, claimed to have improved sensitivity over the previous four-tube model. Beam power output tube is said to increase the output.

A five-tube vanity deluxe superheterodyne replaces the four-tube model. Listing at $12.99, this model is reported to have sensitivity and selectivity of a regular-sized five-tube superheterodyne receiver. List price is for a mottled brown cabinet; ivory or red cabinets can be had for $1 extra.

New console model has the same chassis as the old model, but is housed in a new lowboy cabinet. List price of $49.95 is the same as the current model.

The radio-phonograph combination is priced at $59.95. Having a six-tube single band superheterodyne chassis, it is reported to have the same sensitivity and selectivity as the current Crosley Sixor. Watt output has been increased, the speaker enlarged, and a beam power output tube has been included in the circuit, according to the company's announcement.

Checked again, again, and again!

• Ansul laboratory technicians check Ansul products again and again through the steps of production. The individual analysis tag on every Ansul cylinder is Ansul's certificate of merit—*your* proof of Ansul quality.

There is an Ansul Jobber near you

ANSUL CHEMICAL COMPANY
MARINETTE, WISCONSIN

ANSUL SULPHUR DIOXIDE METHYL CHLORIDE

JOBBERS are making money with it!

Stock room of Federal Refrigerator Corporation, New York. They sell Texaco Capella Oil . . . recommend it highly.

Texaco Capella Oils come in 1-qt., 1-gal., 5-gal. resealable cans, and in 55-gal. factory-sealed drums. These containers assure continued freedom from moisture.

ONE REFRIGERATION SUPPLY JOBBER tells another of his success in handling Texaco Capella Oils.

That's how the Federal Refrigerator Corporation, 57 East 25th Street, New York City, heard of Capella Oils.

They tested Capella, found it more economical to use, proved it resisted breakdown in presence of any new-day refrigerant. Most important—for more than 2 years, there have been no customer complaints. All in all, a money-making item of first importance.

Texaco Capella Oils are available from 2186 warehouses. Texaco lubrication engineers will help you select the right ones for your purpose. For prompt delivery, phone the nearest warehouse or write direct to:

The Texas Company, 135 East 42nd St., N. Y. C.

56 PAGES
of precisely the kind of information every refrigeration man needs day by day. Yours for the asking.

Texaco Dealers invite you to tune in The Texaco Star Theatre—a full hour of all-star entertainment —Every Wednesday Night—Columbia Network—9:00 E. S. T., 8:00 C. S. T., 7:00 M. S. T., 6:00 P. S. T.

TEXACO *Capella Oils*

FOR REFRIGERATION COMPRESSORS

A Company is *Known* but

Distributors Like These—can Pick and Choose!

—THESE CHOSE LEONARD

Let Them Tell You—in Their Own Words—Why They Handle Leonard Electric Refrigerators—Why Leonard Dealers Like the Leonard Way of Doing Business

A DEALER, handling many different articles, might choose something less than the best line for a particular department of his business and still prosper.

A distributor, with his merchandising eggs in fewer baskets, must select the goods he handles with the greatest care. He investigates, studies, compares—constantly.

On the right are listed Leonard's distributors, together with some of the major appliance lines they handle. It is significant that these merchandising leaders should have chosen the Leonard line of electric refrigerators. Sound, experienced business men with established businesses and ample finances, they could pick and choose among the many refrigeration franchises. They chose Leonard.

At the start, this choice was probably largely due to the Leonard refrigerators themselves. Year after year, the line has been made up of brilliantly designed, soundly engineered, correctly priced models, filled with selling features and fitted to the current markets. (All this, incidentally, will be true of the 1939 line to be shown next month.)

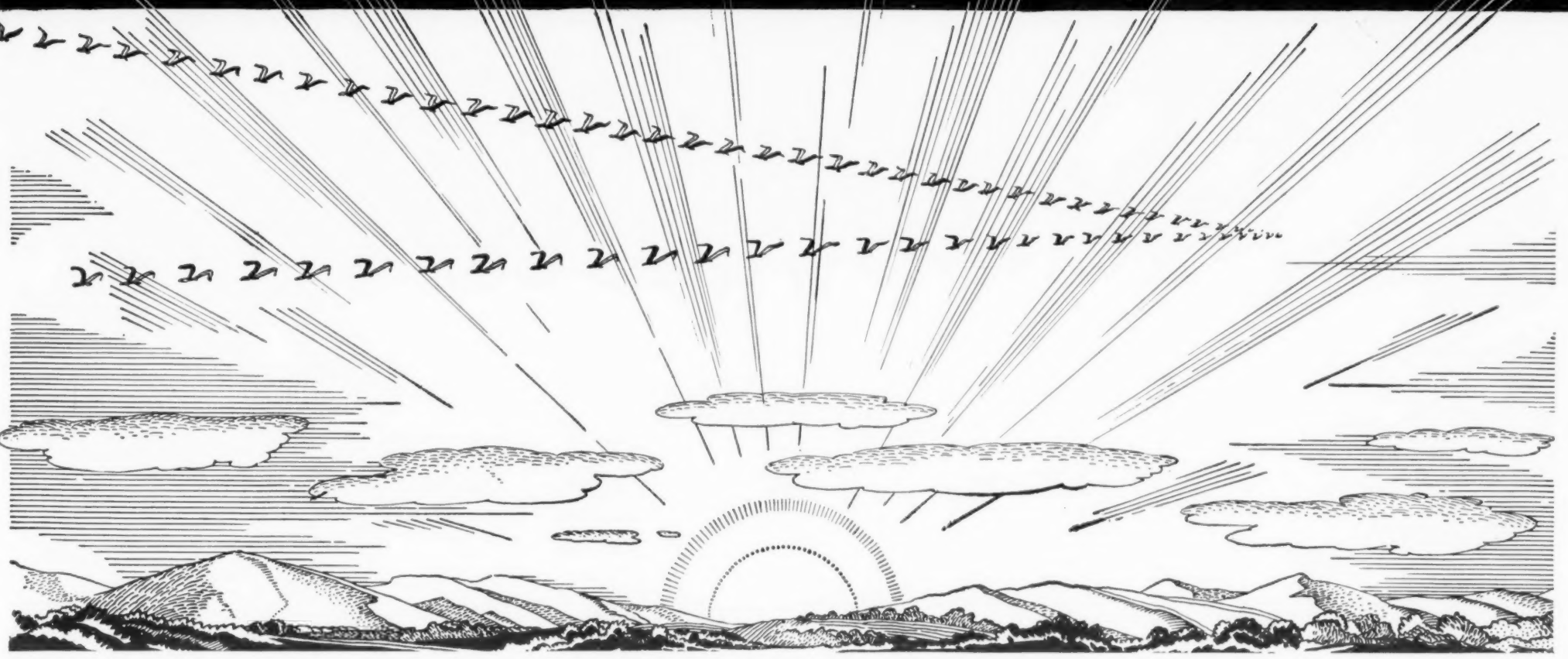
But there was something more. For instance, the Leonard way of doing business. Hard to put into words, but recognized as a real advantage by distributors who keep in close touch with dealers and their daily problems. Maybe "friendly understanding on a personal basis" describes it. Anyhow, dealers who have handled Leonard know what we mean.

We suggest that you have a talk with the Leonard distributor in your territory—or his representative—before you make any refrigerator decisions for 1939. Ask this question, "Why did *you* take on the Leonard line?" Ask about the Leonard way of doing business. And—

See the 1939 Leonards—

PRINT IN BINDING

...the Company it *Keeps!*



Leonard Travels in Good Company!

E. S. & E. CO., INC.		**Albany, N. Y.**
Zenith	Thor	Leonard
ELECTRIC APPLIANCE DISTRIBUTORS		**Altoona, Pa.**
Stromberg-Carlson	Prima	Leonard
NUNN ELECTRIC CO.		**Amarillo, Tex.**
Zenith	Easy	Leonard
LAMAR-RANKIN CO.		**Atlanta, Ga.**
RCA	Apex	Leonard
BROOME DISTRIBUTING CO.		**Binghamton, N. Y.**
Philco	ABC	Leonard
WATTS-NEWSOME CO.		**Birmingham, Ala.**
Philco	Easy	Leonard
BERTRAM MOTOR SUPPLY CO.		**Boise, Idaho**
Gilfillan		Leonard
J. H. BURKE CO.		**Boston, Mass.**
Detrola	ABC	Leonard
JOSEPH STRAUSS CO.		**Buffalo, N. Y.**
Detrola	Bendix	Leonard
VERMONT HARDWARE CO.		**Burlington, Vt.**
RCA-Victor	ABC	Leonard
ESKEW, SMITH & CANNON		**Charleston, W. Va.**
Zenith	Horton	Leonard
A. K. SUTTON, INC.		**Charlotte, N. C.**
Philco	Easy	Leonard
L. C. WISWELL CO.		**Chicago, Ill.**
Estate	Easy	Leonard
SCHUSTER ELECTRIC CO.		**Cincinnati, Ohio**
RCA-Victor	Bendix	Leonard
ARNOLD WHOLESALE CORP.		**Cleveland, Ohio**
Zenith	ABC	Leonard
APPLIANCE DISTRIBUTING CO.		**Columbus, Ohio**
Zenith	ABC	Leonard
PEASLEE-GAULBERT CORP.		**Dallas, Texas**
RCA-Victor, Emerson	Easy	Leonard
YORK SUPPLY CO.		**Dayton, Ohio**
RCA	Easy	Leonard
LINN & SCRUGGS		**Decatur, Ill.**
Philco	Easy	Leonard
HENDRIE & BOLTHOFF CO.		**Denver, Colo.**
RCA	Bendix	Leonard
A. A. SCHNEIDERHAHN CO.		**Des Moines, Iowa**
Zenith	Easy	Leonard
BUHL SONS CO.		**Detroit, Mich.**
Zenith, Emerson	ABC	Leonard
MULLIN FURNITURE CO.		**Dodge City, Kans.**
Philco, Emerson	Easy	Leonard
DELTA HARDWARE CO.		**Escanaba, Mich.**
RCA-Victor	Thor & Bendix	Leonard
J. A. WHITE DISTRIBUTING CO.		**Grand Rapids, Mich.**
Zenith	Meadows	Leonard
KNERR, INC.		**Harrisburg, Pa.**
Zenith	Thor	Leonard
UNITED DISTRIBUTING CORP.		**Indianapolis, Ind.**
Motorola	ABC	Leonard
FEDERAL DISTRIBUTING CO.		**Kansas City, Mo.**
Zenith	Bendix	Leonard
MAYTAG APPLIANCE CO.		**Knoxville, Tenn.**
Maytag	Estate	Leonard
GRAYBAR ELECTRIC CO.		**Los Angeles, Cal.**
Stewart-Warner	Meadows	Leonard
STRATTON-TERSTEGGE CO.		**Louisville, Ky.**
Stromberg-Carlson, Arvin	Thor	Leonard
HARRY T. WILSON CO.		**Memphis, Tenn.**
Majestic	Apex	Leonard
MAJOR APPLIANCES, INC.		**Miami, Florida**
RCA-Victor	Easy	Leonard
TAYLOR ELECTRIC CO.		**Milwaukee, Wisc.**
RCA-Victor	Bendix	Leonard
THE ROYCRAFT CO.		**Minneapolis, Minn.**
Philco	Frogil	Leonard
MATHEWS FURNITURE CO.		**Montgomery, Ala.**
Zenith, Philco, Crosley		Leonard
McWHORTER, WEAVER CO.		**Nashville, Tenn.**
Monarch	Easy	Leonard
E. B. LATHAM CO.		**Newark, N. J.**
Zenith	Bendix	Leonard
SHAPIRO SPORTING GOODS CO.		**Newburgh, N. Y.**
RCA	Quality	Leonard
H. M. TOWER CORP.		**New Haven, Conn.**
Motorola	1900	Leonard
RADIO SPECIALTY CORP.		**New Orleans, La.**
Zenith	Easy	Leonard
E. B. LATHAM CO.		**New York, N. Y.**
Zenith	Thor	Leonard
PARAMOUNT RADIO SHOP, INC.		**Omaha, Nebr.**
Majestic	Thor	Leonard
GLEAVES & SON		**Paducah, Ky.**
Majestic	Speed Queen	Leonard
COHEN FURNITURE CO.		**Peoria, Ill.**
Philco-RCA		Leonard
MOTOR PARTS CO.		**Philadelphia, Pa.**
Stromberg-Carlson	Bendix	Leonard
GRAYBAR ELECTRIC CO.		**Phoenix, Ariz.**
Easy		Leonard
J. A. WILLIAMS CO.		**Pittsburgh, Pa.**
Zenith	Bendix	Leonard
CRESSEY & ALLEN		**Portland, Maine**
RCA-Victor	ABC	Leonard
ELECTRICAL DISTRIBUTING, INC.		**Portland, Ore.**
Zenith	ABC	Leonard
BALLOU, JOHNSON & NICHOLS CO.		**Providence, R. I.**
Zenith	ABC	Leonard
GRAYBAR ELECTRIC CO.		**Richmond, Va.**
Stromberg-Carlson	Thor	Leonard
BEAUCAIRE, INC.		**Rochester, N. Y.**
Philco		Leonard
GRAYBAR ELECTRIC CO.		**San Francisco, Cal.**
Stromberg-Carlson	Meadows	Leonard
ELECTRIC LAMP & SUPPLY CO.		**St. Louis, Mo.**
Zenith	Thor	Leonard
UNITED ELECTRIC SUPPLY CO.		**Salt Lake City, Utah**
Motorola	Easy	Leonard
HOUSEHOLD APPLIANCE DIST.		**Scranton, Pa.**
Emerson		Leonard
SEATTLE HARDWARE CO.		**Seattle, Wash.**
Zenith	ABC	Leonard
CLOUD BROS.		**South Bend, Ind.**
Emerson	Electromaster	Leonard
MORRIS DISTRIBUTING CO.		**Syracuse, N. Y.**
RCA	Bendix	Leonard
ELECTRIC RANGE & EQUIP. CO.		**Toledo, Ohio**
Estate		Leonard
SOUTHERN WHOLESALERS, INC.		**Washington, D. C.**
RCA-Victor	ABC	Leonard
McKELVEY'S		**Wichita, Kans.**
Philco		Leonard
PERSINGER SUPPLY CO.		**Williamson, W. Va.**
Zenith	Thor	Leonard

THEN MAKE YOUR PLANS

IF YOU PREFER, MAIL THIS *COUPON* TO US

LEONARD, Dept. L-7—14250 Plymouth Road, Detroit, Mich.
Please send information about 1939 Leonard Electric Refrigerators and your dealer proposition.

We now handle _____

_____

Signed _____

Address _____

Air Conditioning

Dealers From All Parts of Nation Support Plan For Air-Conditioning Association

(Concluded from Page 1, Column 2)

franchised representatives of reputable equipment manufacturers.

Mr. Keller, representing Mechanical Heat & Cold, Inc., Detroit Westinghouse distributor, said at the Detroit meeting that "a new type of organization has grown up in the air-conditioning industry during the past 15 years, which is more interested in the sale of air conditioning than in installation work."

Answering the opposition of Heating, Piping, and Air Conditioning Contractors National Association representatives who attended the meeting and opposed the new association, H. C. LeVine, Detroit Carrier distributor, said that the heating and piping contractors have never "sold" air conditioning and have left the burden of sales to the air-conditioning dealer.

CLEVELANDERS INTERESTED

M. A. Thesmacher of Cleveland stated that "we have certain problems which are handled entirely by the Air Conditioning Association of Cleveland and our organization has met with a good deal of success.

"The Cleveland group can be counted on to take an active part in discussing the entire situation further during the Chicago meeting in January."

C. E. Hanson of Smith & Oby Co., Cleveland, whose firm handles work in both the heating and piping and air-conditioning trades, stated that "while we are intensely interested in the work of the heating and piping contractors association, we know that in Cleveland only a few of this group are interested in the air-conditioning business in any way."

FURTHER DISCUSSION VOTED

General opinion expressed at the Detroit meeting was that the subject should be given further discussion at Chicago, and that the Air Conditioning Association of Michigan, 5231 Cass Ave., Detroit, be used as a clearing house for ideas relating to the new association between now and Jan. 17.

E. S. Hildreth of the Air Conditioning Council of Indianapolis wired that, while it was impossible for any delegates to attend the Detroit meeting because of previous plans, the Indianapolis group is interested in the project.

William F. Freije, president of the Indianapolis council, also wrote the Michigan association, wishing it success in the preliminary efforts and indicating his active support.

J. M. Sprekelmeyer of General Engineering Corp., Forth Worth, Tex., wrote the Michigan association as follows:

"We believe that the formation of a national association for the air-conditioning industry would be one of the most important steps that could be taken in the interests of the industry. We can assure you that the Fort Worth Air Conditioning Association will lend its wholehearted support to any movement toward putting the industry on a sound and profitable basis.

GLAD TO BE PRESENT

"If a meeting during the Refrigeration and Air Conditioning Exhibition in the Stevens hotel can be arranged, we will be glad to have a delegate from our association attend."

Walter P. Davis, executive secretary of the Air Conditioning Council of Western New York, Buffalo, wrote the Michigan association that "due to other commitments, it will not be possible for me to attend this (Detroit) meeting, but I most assuredly will be at the meeting in Chicago. As I am unable to be present on Nov. 28, I hope it will be in order to make a suggestion.

"It seems to us that if a national air-conditioning body is formed, it should take into its membership only local air-conditioning councils, and that these councils should be composed of every factor in the air-conditioning business.

ALL FACTORS ESSENTIAL

"This will include the summer air-conditioning contractors, all dealers in accessory equipment in summer air conditioning, with winter air-conditioning contractors and all accessory dealers; the local members of the fire underwriters; the gas, electric, and ice companies; dealers in automatic heating equipment, gas, oil, and stoker, as we have found this group to be a fertile field in the education of the public on air conditioning.

"The insulation dealers and distributors have a definite interest in air conditioning, as well as real estate boards, lumber dealers, especially those selling double windows.

"We have such groups sponsor members of our local council, and have found that by cooperation, wherein each sponsor is serving on a definite committee, that we are in a better position to educate the public in the science and art of air conditioning.

HOW BUFFALO OPERATES

"Where there are problems peculiar to any division of the air-conditioning business, such as the contractors in summer air conditioning, we have formed committees of the estimators or engineers of those concerns, and the problems have been freely and frankly discussed. The council has offered its services to any purchaser of any type of air-conditioning equipment in order that bids may be clarified, it being distinctly understood that the purchaser, after the bids are scanned, will make his own decision.

"This, up to the present time, is working out satisfactorily. By the use of a summary sheet, it is extremely easy to set the bids before the prospective purchaser in such a way that he can make his own decision.

"If air-conditioning bureaus or councils, each having one vote, formed a national body, problems incidental to any phase of the air-conditioning business could be properly solved to the best interest of all concerned.

"However, if individual membership of contractors are permitted in a national body, there will not be in our opinion the same type of cooperation, and under such circumstances, problems which are only local in character may be discussed from time to time without there being sufficient national interest evidenced.

"It is our feeling that utilities will give greater support to local councils than they will to a national body, and information coming to the national body from the local councils will be composite in character and will be easier of solution from the standpoint of a national organization."

MANY CITIES INTERESTED

L. C. Way of the Way Engineering Co., Houston, Tex., writes that he will try to attend the meeting in Chicago, Jan. 16-19.

J. Lawrence DeNeille of the Eichler Heating Co., St. Louis, Frigidaire distributor, wrote that "as contractors in this industry we are anxious to know more about the formation of the national association referred to in your Nov. 16 issue.

"Please have full details sent to us regarding the proposed Detroit meeting on Nov. 28, and the Chicago meeting on Jan. 16-19."

Mr. DeNeille was president of the Heating, Piping, and Air Conditioning Contractors National Association during 1934-35, and states that he is "very much interested in the future of the air-conditioning industry."

LOUISIANA GROUP STARTING

B. C. Nabers of the Home Appliance Sales, Inc., Baton Rouge, La., wrote the Michigan association saying, "We would appreciate information concerning the new organization of air-conditioning contractors, as we are just beginning to do a little of this type of work, handling the Kelvinator line."

F. B. Mahon, secretary of the Air Conditioning Bureau of Pittsburgh, requested a report on the Detroit meeting and advance information on the Chicago meeting.

James Murray, treasurer of Mellish & Murray Co., Chicago, wrote, "This plan for a national association is a definite step forward."

"An organization of this kind can be very helpful to the industry," A. J. Mitchell of Straus-Frank Co., Houston, Tex., pointed out. Lars Hedstrom, president of General Air Conditioning Co., Inc., Buffalo, expressed interest in the proposed association and suggested that the group cooperate with the Air Conditioning Council of Western New York.

SOUTHERNERS WANT DATA

"We are interested in a national association such as you are endeavoring to organize," L. C. Adamson of The Murray Co., Fort Worth, Tex., stated. Joel M. Whitney of Keith-Simmons Co., Inc., Nashville, Tenn., said, "Sorry that we cannot be with you, but will be much interested in proceedings."

Paul J. Vincent of the Paul J. Vincent Co., Baltimore, stated that he will endeavor to attend the meeting to be held Jan. 17 in Chicago, and R. R. Hollister of Hollister Electric, Inc., Dayton, Ohio, who also was unable to attend the Detroit session, expects to be present at the Chicago meeting.

"A splendid idea," declared A. M. Carney of the A. M. Carney Co., Omaha, Neb., in commenting on the proposed association. Frank C. Pate of Davidson-Kennedy Co., Atlanta, stated, "We feel sure that such an association is the means to a satisfactory end." W. C. Baker of Electric Appliance, Inc., Nashville, Tenn., requested further information on the association and pointed out that attempts to form a local group in Nashville have been unsuccessful.

REQUEST MEETING REPORT

Among those who requested reports of the preliminary meeting were Robert S. Curr, Carle Electric Construction Co., Akron, Ohio; Ray Fischer, J. George Fischer & Sons, Inc., Saginaw, Mich.; Paul E. White, Page-Williamson, Inc., Charlotte, N. C.; S. R. Matthews, Matthews Engineering Co., Dallas, Tex.; J. L. Cassell, Joe Hoppe, Inc., Dallas, Tex.; I. I. Bock, Carrier-Bock Corp., Dallas, Tex.; Paul V. Barmann, Lydick-Barmann Co., Fort Worth, Tex.

G. J. Bartels, Automatic Stoker & Engineering Co., Parkersburg, Va.; C. L. Eichstaldt, National Korectaire Co., Chicago; D. D. Stafford, North-Davis, Inc., Kalamazoo, Mich.; Ross Hunter, E. H. Rolf Coal & Supply Co., Fort Wayne, Ind.; William B. Cott, Doermann-Roehrer Co., Cincinnati; Robert P. Cotter, Martin Wright Electric Co., San Antonio, Tex.; W. F. Patrick, The Murray Co., Atlanta; H. E. Mason, Mason & Lambert, Harrisonburg, Va.; R. W. Evans, Sutherland Air Conditioning Corp., Minneapolis; John P. Murdoch, John P. Murdoch Co., Philadelphia; J. Earl Frazier, vice president, Frazier-Simplex, Inc., Washington, Pa.; Robert P. Quinn, Shook & Fletcher Supply Co., Birmingham, Ala.

MORE DEALER REQUESTS

W. E. Thorpe, Dixie Engineering Co., Memphis, Tenn.; Charles G. Barger, Associated Air Conditioning Corp., St. Louis; F. E. Miholick, Jr., Midwest Sales & Service, South Bend, Ind.; E. Jones, Midwest Engineering & Equipment Co., Chicago; Albert E. Stratton, Coleman-Stratton, Inc., Buffalo; A. J. Rummel, San Antonio Public Service Co., San Antonio, Tex.; A. M. Norris, Lloyd E. Mitchell, Inc., Baltimore; H. C. Pierce, George F. Dent Co., Bay City, Mich.; L. H. Jenks, Jr., Times Appliance Co., Inc., New York City; R. H. Gray, Air Control, Inc., Indianapolis; E. Culver, American Sales Co., Dayton, Ohio; J. D. Gerken, Jr., Gerken Heating Corp., Toledo; P. T. Kuhr, Kuhr Bros., Savannah, Ga.; William Parkerson, Air Conditioning Engineering Co., New Orleans; Jay E. Tone, Jr., Tone Air Conditioning Co., Des Moines, Iowa; Edward S. Bigelow, Trilling & Montague, Philadelphia; Horace F. Ashton, Hudson Air Conditioning Corp., Washington, D. C.; J. H. McKenney, Maryland Refrigeration Co., Inc., Baltimore; A. E. Mitchell, manager, A. P. Woodson Co., Washington, D. C.; Mr. Gannett, Eastman & Fleming, Inc., Harrisburg, Pa.; Henry S. Howard, Newport Supply Co., Inc., Newport, R. I.; J. O. Lanham, Jr., Tampa, Fla.; and H. E. Wheeler, Air Comfort Corp., Chicago.

Air-Conditioned 'Bungalow' In Machine Shop Insures Accurate Grinding of Giant Gears For Telescope

PALOMAR MOUNTAIN, Calif.—A special air-conditioned bungalow, built inside a huge machine shop and equipped with a Carrier air-conditioning system having special filters and sensitive thermostatic controls, is being used by California Institute of Technology scientists to help insure accurate grinding of the three giant gears which will be part of the machinery used to operate the 200-inch, $15,000,000 Palomar telescope being constructed here.

Each of the 720 teeth on each of the three 8-ton gears which measure 14½ feet in diameter must be faultlessly accurate, for the slightest binding or lurch of the gears in operation would render the gigantic telescope useless. So slowly and painstakingly are the gears being ground that it will be nearly a year before they are completed.

To insure greatest possible accuracy in spacing the teeth on these gears, the entire gear must be kept at a constant temperature while being ground. Teeth ground in a part of the gear cooler than the rest, for instance, would be too wide after normal heat expansion took place. The shaft holding the gear cutter also is kept at constant temperature by use of running water.

It was because of this need for maintaining constant temperature conditions that Institute scientists ordered construction of the air-conditioned bungalow within the machine shop. Tests have shown that inside this bungalow air temperature does not vary more than ½ degree in 24 hours, a constant temperature of 75° F. being maintained. A Carrier air-conditioning expert is on hand to take frequent temperature readings.

Cutting of the gears is being directed by G. W. Sherburne under the supervision of Dr. John A. Anderson.

The telescope and observatory, erected for the Institute by the Rockefeller Foundation, have been five years in the making. The 200-inch telescope, when completed, will magnify objects to 1,000,000 times the size they appear to the naked eye. Penetrating eight times farther into space than the 100-inch telescope at Mt. Wilson, the Mt. Palomar "eye" will make the moon seem just 20 miles away.

James & Roach Named Airtemp Dealer

DETROIT—Airtemp Construction Co. of Michigan has announced the appointment of James & Roach, local Stokol stoker distributor, as exclusive dealer in the metropolitan Detroit area for the Airtemp line of room coolers and self-contained 3 and 5-ton store-cooling units.

James & Roach also will handle Airtemp winter air-conditioning equipment on a non-exclusive basis.

Large Systems Denied Use Of London, Ont. Sewers

LONDON, Ontario, Canada—Engineers for the city here have ruled that water from air-conditioning systems in theaters, churches, and other large buildings may not be discharged into the city sewers for fear of overtaxing them.

This ruling follows a recent discussion by the Public Utilities Commission concerning the sale of water for air-conditioning purposes in which members expressed fear of a water shortage.

No definite action was taken but a decision is expected soon.

Robert Thurston Will Manage Memphis Air Conditioning Co.

MEMPHIS, Tenn. — Robert S. Thurston, formerly with the General Electric Co. at Bloomfield, N. J., has been named general manager of the General Air Conditioning Co. at 750 Union St. here. The firm handles General Electric air-conditioning and heating equipment.

Midwest Airtemp Appoints France General Manager

WICHITA, Kan.—Midwest Airtemp Corp. announces the appointment of A. L. France as general manager of the company. During the past two years, Mr. France has served the organization as district engineer.

VIRGINIA SMELTING CO.
WEST NORFOLK, VA.

Anaconda Copper
Refrigeration Tubes
Unusually soft!

THE AMERICAN BRASS CO.
FRENCH-SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

REMPE
UNIT COOLERS
—for precision cooling at any temperature — even as cold as ELEVEN DEGREES. Write for Free Data Bulletin 105
REMPE CO.
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PAR CONDENSING UNITS
28 MODELS
1-4 TO 20 H. P.
WRITE FOR FREE CATALOG
MODERN EQUIPMENT CORP.
DEFIANCE, OHIO, U. S. A.

FOR BIGGER PROFITS DURING 1939, WRITE TO
BAKER
ICE MACHINE CO., INC.
1540 Evans St. Omaha, Nebr.

"Superior by name Superior in Quality"
SUPERIOR VALVE & FITTINGS CO.
500-37TH ST. PITTSBURGH, PENNA.
Manufacturing a complete line of DIAPHRAGM PACKLESS VALVES, MANIFOLDS, ACCESSORIES and FITTINGS for the Refrigeration and Air Conditioning Industry.
"FORBES PRODUCTS"

Text of McGovern's Comment on Dryers

Editor's Note: On page 11 of the Nov. 16 issue of AIR CONDITIONING & REFRIGERATION NEWS was published a report of the talk given by V. E. Hall, the Hall Refrigeration Co., Binghamton, N. Y., before the Refrigeration Service Engineers convention on the subject of "Drying Agents." Also reported briefly were some of the comments of E. W. McGovern of the R. & H. Chemicals Department of E. I. du Pont de Nemours & Co., Inc., immediately following Mr. Hall's talk.

Mr. McGovern prepared a written version of his comment, which unfortunately did not arrive in time for the Nov. 16 issue. Because the report on Mr. McGovern's report was inadequate, and because the subject of drying agents is attracting so much interest now, the editors are herewith giving the full text.

"There may be a misunderstanding in believing that some refrigerator manufacturers feel that it is impossible to dry sulphur dioxide systems as it certainly has been known to machine manufacturers that sulphur dioxide is satisfactorily dried in the course of its manufacture.

"Main difficulty about sulphur dioxide and moisture is that by the time the presence of moisture is known it is often too late, since the system is already too badly damaged to accomplish much or any good by installation of a dryer. In the case of refrigerants such as methyl chloride, reaction with water to form acid is slow, not immediate as in the case of sulphur dioxide.

"Installation of a dryer within a reasonable period of time on a wet methyl system, say within a few days or weeks, will thus avoid trouble while a sulphur system would be badly corroded in this time. Further, sulphur systems do not warn of the presence of moisture by freezups. Still another consideration is that conditions of drying in the manufacture of sulphur dioxide differ from those in a refrigerating machine.

"Complete removal of water from a sulphur machine by dryers is slow and is more difficult than in the case of refrigerants such as methyl.

"Our experience has indicated that a calcium oxide dryer has some advantages when installed temporarily on methyl systems. It appears to be more rapid in taking up water than the adsorptive agents, it has a higher capacity and it neutralizes acid. Because of its neutralizing effect, it like soda lime, appears to be effective to some extent in preventing 'copper plating.'

"It should be used only temporarily because of its great tendency toward disintegration (although the particles are claimed to be soft and therefore relatively non-abrasive) and because of its slow reaction with refrigerants such as methyl to form calcium chloride. It and other alkaline dryers for refrigerating systems are claimed by a patent issued to the Chicago Pneumatic Tool Co.

"Barium oxide is much like calcium oxide but in addition to the disadvantages mentioned, we have been informed that it takes up moisture so rapidly and with such evolution of heat that dryers charged with it have been known to explode. Perhaps reaction with refrigerant is also involved. This material therefore should not be used on refrigerating systems.

"We advise against use of calcium chloride, even temporarily, because of possible solution of the material and consequent corrosion of the system. Calcium chloride is water soluble and this brine is corrosive.

"Drierite (calcium sulfate), activated alumina, silica gel, and calcium oxide are all essentially insoluble in water and refrigerant.

"Activated alumina has been tested in the Du Pont laboratories for acid absorbing qualities and we have found that it can reduce acid in methyl chloride systems to a very low percentage. This may be due to adsorption of the hydrochloric acid or its water solution in which case similar results might be expected with Drierite and silica gel which we have not tested.

"However, it would appear that activated alumina, being amphoteric and therefore capable of reacting as either an acid or a base may be at least aided in acid removal by reacting with hydrochloric acid to form aluminum chloride."

Explanation Showing How To Use 'Trouble Finder' Chart For Household & Commercial Systems

On the following two pages (16 and 17) of this issue is published a "trouble finder" chart for household and commercial refrigeration systems, developed by the engineering staff of Fedders Mfg. Co. under the direction of Joe Askin, chief engineer.

Service engineers and those connected with refrigeration service work have long been seeking short cuts to a method of diagnosing service complaints and describing the proper remedy, but so many and varied are the difficulties that may be encountered in automatically controlled refrigeration systems that it is impossible to enumerate them all.

The Fedders chart comes about the closest to providing a compact, handy, and systematic method of charting service troubles as anything yet brought forth.

In the chart given on the following two pages the various complaints and causes of the difficulty in a refrigeration machine are listed.

The observations made by both the user and the service man are shown in the **boldface** type; the causes of the difficulty are given in the lightface type on the same line.

In the column at the left are listed the following types of systems:

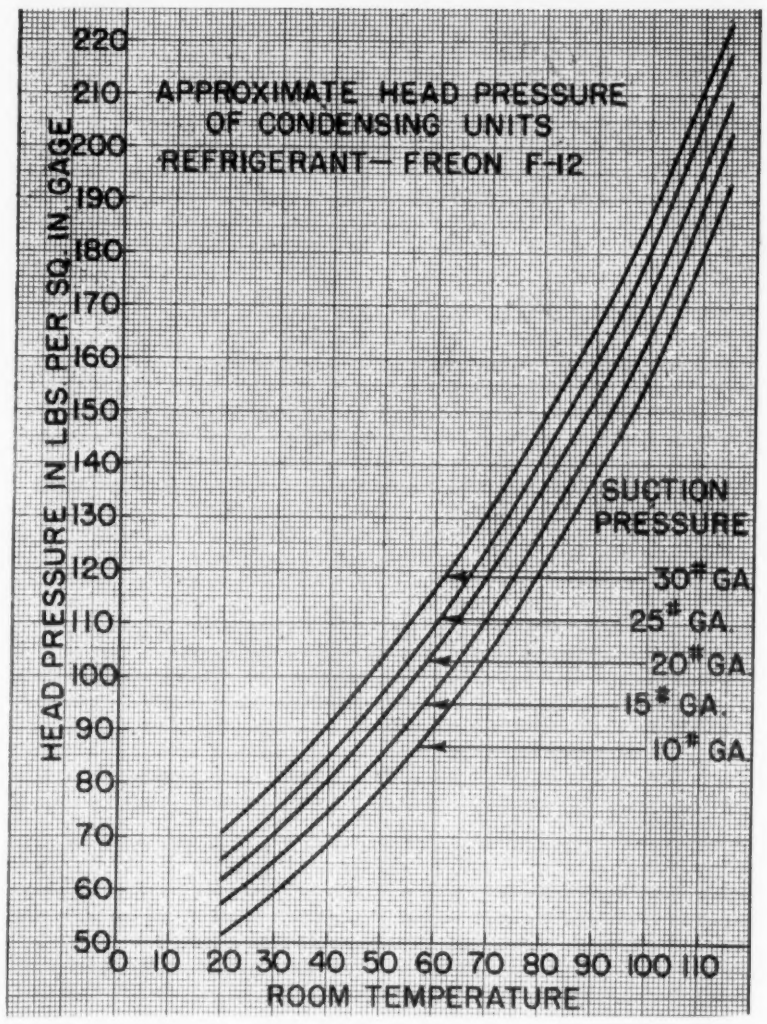
Any type
Any with thermostat control
Any with pressure control
Thermostatic expansion valve
Automatic expansion valve
Automatic expansion valve or low side float flooded
Low side float flooded
High side float
High side float with pressure control
Capillary tube

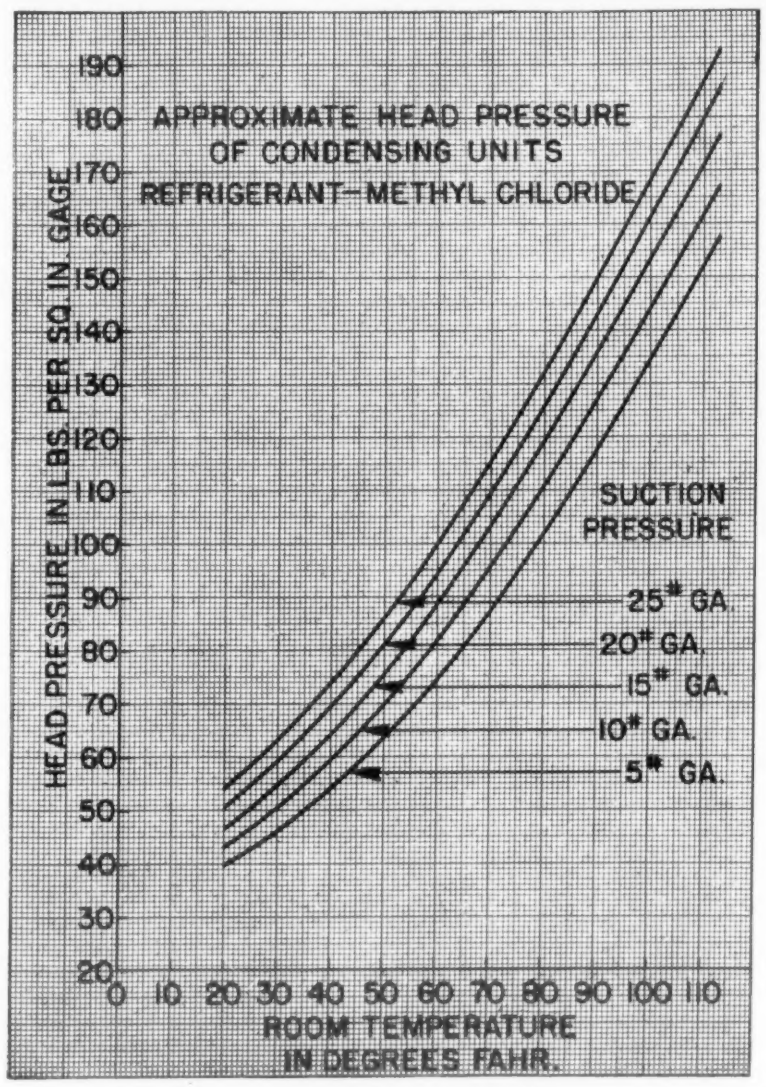
All that is necessary is to locate the observations corresponding to the type of system in question, as shown in the bolder face of type; and then on the same line find the cause of the trouble, as given in the lighter face of type.

The dagger (†) under the heading "suction pressure" along the top of the chart refers to Table 1, which gives the suggested suction pressure for various applications. This will enable the service man to know when a unit is operating either under high or low suction pressure.

The asterisk under the heading "discharge pressure" refers to the curves which give the approximate discharge pressures for air-cooled condensing units.

These curves are plotted for the three most popular refrigerants in use, and each group of curves is arranged so that the pressure corresponding to each suction pressure at various room temperatures may be easily observed.





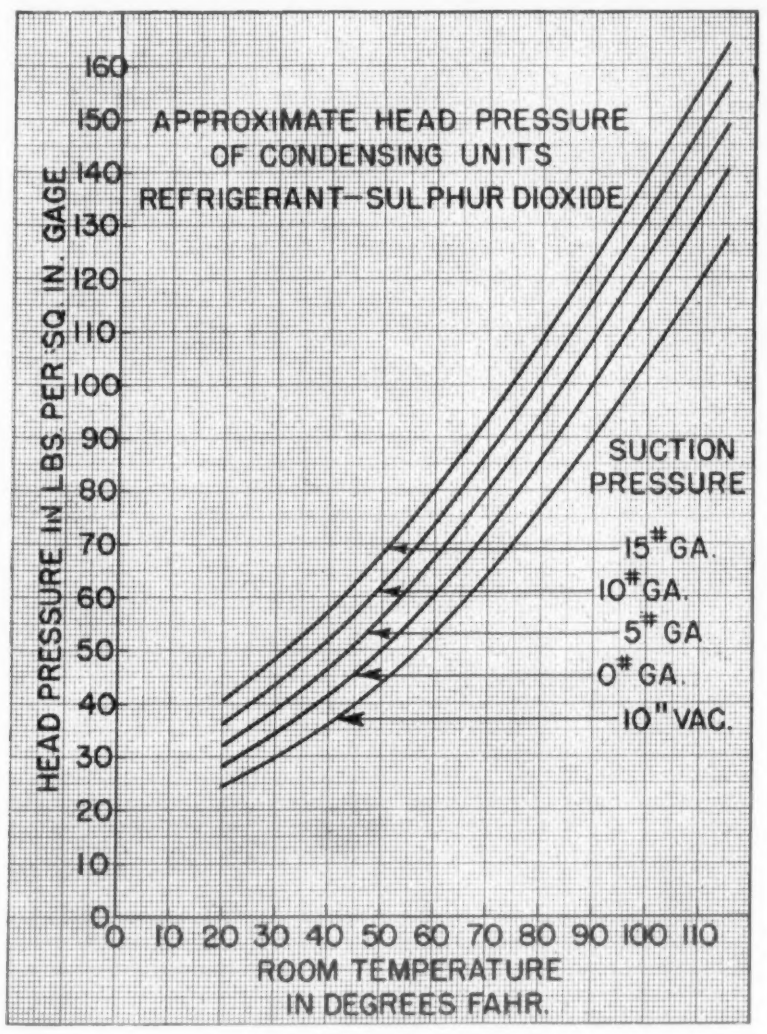


Table 1—Fedders Commercial Low Sides—Approximate Pressure Control Settings

Pressure in Pounds Gauge; Vacuum in Inches Mercury

Type of Low Side	Application	Sulphur Dioxide (SO_2) Cut-out	Sulphur Dioxide (SO_2) Cut-in	Methyl Chloride (CH_3Cl) Cut-out	Methyl Chloride (CH_3Cl) Cut-in	Freon (CCl_2F_2) Cut-out	Freon (CCl_2F_2) Cut-in
S and L series, Flooded type cooling units	Commercial and Domestic Refrigerators	8" vac.	6 lbs.	5 lbs.	17 lbs.	10 lbs.	25 lbs.
C-135, C-136, C-137 Flooded type cooling units	Ice Cube Maker	14" vac.	0 lbs.	0 lbs.	11 lbs.	4 lbs.	17 lbs.
FC-6, FC-8, FC-16 Dry Evaporators with T.E.V.	Ice Cube Maker	14" vac.	0 lbs.	0 lbs.	11 lbs.	4 lbs.	17 lbs.
C-100 to C-16W series, Flooded type cooling units[1]	Ice Cream Cabinet—Brine Tank	14" vac.	6" vac.	0 lbs.	6 lbs.	4 lbs.	12 lbs.
C-100 to C-16W series, Flooded type cooling units[2]	Beer Cooler, Water Cooler—Sweet Water Bath	0 lbs.	6 lbs.	11 lbs.	19 lbs.	17 lbs.	27 lbs.
600, 700, and 800 series[3]	Show Cases and Reach-in Coolers	8" vac.	5 lbs.	5 lbs.	17 lbs.	10 lbs.	25 lbs.
600, 700, and 800 series[4]	Show Cases and Reach-in Coolers	0 lbs.	10 lbs.	12 lbs.	25 lbs.	18 lbs.	34 lbs.
Dry Evaporator Coil connected to Model 33 T.E.V.[1]	Ice Cream Cabinet—Brine Tank	14" vac.	6" vac.	0 lbs.	6 lbs.	4 lbs.	12 lbs.
Dry Evaporator Coil connected to Model 33 T.E.V. with Sweet Water Bath[2]	Beer Cooler, Soda Fountain, Water Cooler, Milk Cooler—Sweet Water Bath	2" vac.	6 lbs.	10 lbs.	19 lbs.	16 lbs.	27 lbs.
Non-Frost Commercial Evaporators[4]	Walk-in Coolers, Reach-in Coolers, Show Cases	6" vac.	10 lbs.	6 lbs.	24 lbs.	12 lbs.	33 lbs.
Non-Frost Commercial Evaporators[5]	Ice Cream Trucks, Ice Cream Hardening Rooms	16" vac.	2" vac.	4" vac.	9 lbs.	2 lbs.	15 lbs.
Coils Soldered to a Flat Plate and connected to a T.E.V.	Vegetable Display, Fish Shelf	8" vac.	10 lbs.	5 lbs.	24 lbs.	11 lbs.	33 lbs.
Coils in a tank connected to a Model 33 T.E.V.	Eutectic Brine Tank for Ice Cream Trucks	18" vac.	14" vac.	6" vac.	0 lbs.	1 lb.	4 lbs.
Forcedraft Unit Coolers	Walk-in Coolers, Reach-in Coolers	0 lbs.	10 lbs.	12 lbs.	27 lbs.	18 lbs.	36 lbs.
Air Conditioning Coils	Stores, Offices, and Buildings	9 lbs.	21 lbs.	23 lbs.	40 lbs.	32 lbs.	52 lbs.
B and R series Beer Coils—Sandwich Type	Beer Coolers	6 lbs.	15 lbs.	20 lbs.	28 lbs.	28 lbs.	37 lbs.

[1]Alcohol or Calcium Chloride Brine. [2]Ice Accumulation Around Coil. [3]Frosting Cycle. [4]Defrosting Cycle. [5]Not non-frost in this case.

'TROUBLE FINDER' CHART FOR HOUSEHOLD &

← OBSERVATION OF MACHINE

Type System	Thermostat Or Pressure Control	Motor	Pulley and Flywheel	Belt or Drive	Compressor	Condenser	Strainer, Filter, or Dehydrator	Metering Valve	Evaporator	Connections
Any					Inefficient or running too slow					
Any	Stuck or set too low									
Any										
Any										
Any	Contacts stuck open									
Any	Contacts closed but dirty	Burnt out								
Any				—		Unit in too cold a location				
Any		Too much end play. Brushes dragging	Loose or out of line	Too loose. Rough spots. Squeaks	Valves noisy. Seal squeaks. Pumping oil. Loose wrist pins, connecting rods, bearings, eccentrics			Chattering		
Any									Circulation of air in refrigerator restricted by too much frost. Evaporator too small for refrigerator	
Any										
Any										
Any	Not adjusted properly									
Any									Poor air circulation due to too much frost. Brine or alcohol leak	Broken flare. Cracked flare nut
Any	Operating on too short a range									
Any with Thermostatic Control								Stuck closed		
Any with Pressure Control								Stuck closed or plugged		
Any with Pressure Control								Partial restriction		
Any with Pressure Control								Stuck closed		
Any with Pressure Control					Stuck					
Thermostatic Expansion Valve							Plugged	Power element lost charge. Valve not adjusted properly	**Warm**	
Thermostatic Expansion Valve					Leaky valves	Poor ventilation				
Thermostatic Expansion Valve									**Frozen over.** Insufficient surface. Improper air circulation	
Thermostatic Expansion Valve								Frozen in open position. Open too much. Leaking valve. Bulb loosely clamped to suction line	**Flooded**	
Thermostatic Expansion Valve										
Thermostatic Expansion Valve					Leaky valves. Too small	Obstructed				
Thermostatic Expansion Valve						Too cold a location	Plugged	Power element lost charge. Improper setting. Bulb in wrong location	**Partially cold**	
Automatic Expansion Valve								**Heavy frost at outlet** Set too low. Restricted by dirt		
Automatic Expansion Valve								Leaking slightly or set too high		
Automatic Expansion Valve or low side float flooded		**Hot**			**Hot**	Poor ventilation. Dirty. Insufficient surface				
Automatic Expansion Valve or low side float flooded										
Automatic Expansion Valve or low side float flooded		**Hot**			**Hot**	Poor ventilation				
Automatic Expansion Valve or low side float flooded					**Crankcase cold**			Leaking badly. Stuck open. Set too high		
Automatic Expansion Valve or low side float flooded					**Crankcase warm** Very inefficient					
Low side float flooded					**Crankcase cold**			Float valve leaking slightly at seat		
High side float		**Hot**			**Hot**	Poor ventilation				
High side float		**Very hot**			**Very hot**	Poor ventilation				
High side float					Very inefficient			Leaking badly or stuck open		
High side float										
High side float with pressure control										
High side float with pressure control					Discharge valve leaking					
High side float with pressure control								**Heavy frost at outlet** Leaking slightly		
High side float with pressure control									**Partially frosted or sweating**	
Capillary tube		**Low wattage**				**Temperature normal**				
Capillary tube	**Thermal overload stopped motor**	**Wattage very high**				**Cool**		Capillary tube plugged		
Capillary tube		**Wattage high**				**Hot**				
Capillary tube		**Wattage high**				**Hot**				
Capillary tube		**Low wattage**			Leaky compressor discharge valve					
Capillary tube	Loose control bulb	**Wattage normal**								
Capillary tube	Discharged control bulb or burnt contacts					**Cool**				
Capillary tube					Seal leak	**Hot**				Leak on suction side. Cracked flare nut

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COMMERCIAL REFRIGERATION SYSTEMS

See explanation of how to use chart on Page 15

OBSERVATION OF CONDITIONS

Refrigerator	Suction Line	Liquid Line	†Suction Pressure	*Discharge Pressure	Refrigerator Temperature	Evaporator Temperature	Ice Cubes or Tray Contents	Running Time	Charge of Refrigerant	Capacity of Machine	Other Observations
				Slightly low	Normal or too cold			Too long or continuous			
			Below normal cut-out point		Normal or too cold			Too long or continuous			
Defective. Doors left open. Hot foods. Loose fitting doors. Poor gaskets. Poor insulation					Normal or too cold			Too long or continuous		Low	
Defective. Doors left open. Hot foods. Loose fitting doors. Poor gaskets. Poor insulation					High			Continuous			
			Above normal cut-in point		Very high			Not running			
			Above normal cut-in point		Very high			Not running			Open circuit. Fuse blown. Broken wire. No power
				Much below normal	Very high			Not running			
	Vibrating	Vibrating									Machine reported noisy
Poor insulation					Too warm		Frozen				Food too crowded. Paper on shelves. Too high a service load
Sweats on outside. Poorly insulated. Loose fitting doors											Unit too close to one wall. Very humid weather
Sweats on inside. Poor doors. Poor lining on doors											Steaming hot foods placed in refrigerator
							Desserts do not freeze. Too much flavoring extract, sugar or fruit juices. Recipes not followed				
Odors. Decayed foods, improper sealing of insulation. Dairy foods or pickled foods exposed. Lacquer odors in new cabinets											
					Normal or too high			Short cycles			
	Plugged	Plugged	Considerably below normal	Low	High			Continuous			
	Plugged	Plugged			Very high			Short cycles			
	Partial restriction	Partial restriction	Rises rapidly when machine stops		High			Short cycles			
	Plugged	Plugged		Below normal	Very high			Not running			
			Below normal cut-out point		High			Not running	All leaked out		
	Warm		Below normal		Warm			Not running	All leaked out		
			Normal or below normal		Normal or too cold	Too low		Continuous or too long	Slight undercharge or considerable overcharge		
	Cold		Low		Warm	Warm		Short cycles			
	Cold		Normal or above normal		Normal or too cold			Too long or continuous			
	Restricted		Low		Warm	Warm		Short cycles			
	Warm		High			Warm		Continuous	Slight undercharge or overcharge		
	Warm	Plugged or too small	Low			Partially cold		Short cycles	Undercharge. Moisture in system		
			Below normal setting		Normal or too cold			Too long or continuous			
	Frosted or sweating		Above normal setting		Normal or too cold			Too long or continuous			
				Above normal	Normal or too cold			Too long or continuous	Slight overcharge		Air in system. Too warm a location
		Warm		Slightly low	Normal or too cold			Too long or continuous	Slight overcharge		
				Considerably above normal	High			Continuous	Large overcharge		Air in system. Machine in too warm a location
			Above normal	Below normal	High			Continuous			
	Frosted or sweating				Normal or too cold			Too long or continuous			
				Above normal	Normal or too cold			Too long or continuous			Air in system. Machine in too warm a location
				Considerably above normal	High			Continuous			Air in system. Machine in too warm a location
			Above normal	Below normal	High			Continuous			
	Frost too far out				Normal or too cold			Too long or continuous	Slight overcharge		
	No frost at outlet from refrigerator				Normal			Short cycles	Slight undercharge		
					Normal			Short cycles			
					Normal or too cold			Short cycles			
					High			Short cycles	Considerable undercharge		Low brine level
	Warm		Low	Low	High			Continuous	Undercharge		
	Warm	Cool	High	Very high	Very high	Warm		Continuously if thermal cut-out does not function			
	Warm	Warm	Normal or slightly high	High	Normal or slightly low			Continuous or too long			Air in system
	Frosted	Warm	High	High	High			Too long or continuous	Overcharge		
	Warm		High	Low	Slightly below normal			Too long			
					Too cold			Continuous or too long			
	Cool		High	Low	High			Will not start			
	Warm	Warm	High	High	Normal or too cold						Air in system

*See Curves on Page 15 for approximate Discharge Pressure of Air-Cooled Condensing Units. †See Table 1 on Page 15 for suggested Suction Pressures for various applications.

Commercial Refrigeration

Service Complaints & Instructions For 'Two Boiler' Soda Fountains (Cont.)

More information on the servicing of the "two-boiler" soda fountain is given in this article, a part of a series on the servicing of soda fountains, ice cream cabinets, and counter-type ice cream freezers. This series, written by Mr. Black and Mr. Seitz, began in the Oct. 19 issue.

By Arch Black and Dean C. Seitz

Water Frozen

Third complaint which may be received by a service engineer from a user of a two-boiler soda fountain is that the water is frozen. Since the freezing point of the soda water is approximately 4° lower than that of city water, it is usually found that the city water is the one that is frozen.

Before assuming that either the city or soda water is frozen, it is advisable to lift the lid of the water cooling section and inspect the amount of ice formation. If the ice completely surrounds either the cooling coils or cooling cylinders, and water will not run from the draught arm, then it is safe to assume that the coils are frozen. Obviously, if ice does not surround the coils or cylinders, the service engineer should look for a closed valve in the water line or at the carbonator.

The three major causes for frozen city or soda water are given below together with their corresponding remedies.

1. TOO LARGE AN ICE FORMATION

Too large an ice formation may be caused by an improper adjustment of the pressure regulating valve. The setting of the valve should be so adjusted that it will hold an ice formation around the boiler approximately 2 inches thick. If the ice formation is permitted to encircle the cooling coils or cylinders, it is most likely that the water will freeze and burst the coils or cylinders.

The remedy is to adjust the pressure regulating valve to maintain the correct thickness of ice formation.

If upon inspection the service engineer finds that the coils or cooling cylinders have burst due to freezing, the customer should be advised to purchase new cooling coils or cylinders, as the case may be, from the manufacturer of the soda fountain.

It is not recommended that the service man attempt to solder or patch a leak in either the block tin cooling coils or tin lined cooling cylinders. It is extremely difficult to solder block tin because of its low melting point. A poor job is always the result.

To give the customer temporary relief, it is suggested that the service engineer by-pass the leaking section and advise the customer to order a replacement part from the manufacturer.

2. LEAKING PRESSURE REGULATING VALVE

A leaky pressure regulating valve will continuously allow gas to pass from the sweet water bath boiler to the refrigerating machine during the running cycle of the machine. Under these conditions the ice formation will continue to increase until the cooling coils and cylinders will be frozen.

The proper remedy is to replace the pressure regulating valve with a new one.

3. USE OF NON-FREEZING SOLUTION IN WATER BATH

If a non-freezing solution such as alcohol or glycerine is placed in the water bath, the temperature of the entire water bath compartment will be reduced below the freezing point. The cooling coils and cylinders immersed in the bath will of course be cooled below 32° F. As a result all the cooling coils and cylinders will be frozen.

Remedy: as quickly as the bath can be thawed and drained, the cooling coils and cylinders should be tested for leaks. If they do not leak, the water bath compartment should again be filled with sweet water and the pressure regulating valve adjusted to produce the correct ice formation. A non-freezing solution should never be used in the water bath of a soda fountain.

Water Too Warm

The fourth complaint that may be received on a soda fountain is that either the city water or soda water is too warm. On a two-boiler soda fountain, in which the jar rack refrigeration is obtained by conduction, it should not be expected that the first glass of water drawn after a rest period will be below 40° F.

Since the block tin leader line connecting the water bath compartment with the draught arm runs through the syrup jar enclosure, the first glass of water will probably be at the temperature of the syrup jar enclosure.

This temperature will probably be in the neighborhood of 50 or 55° F. If the customer's complaint is on the first glass of water drawn, it is only possible for the service engineer to advise the customer that his relief is to use cracked ice in the water or to provide additional refrigeration in the jar enclosure. The service engineer at this point may be able to sell his customer the installation of a separate expansion coil of copper tubing together with a thermostatic expansion valve for the syrup jar enclosure.

The service engineer may rather tactfully point out to the customer that the more modern or more recent soda fountains are equipped with automatic jar enclosure refrigeration. By carefully pointing out that jar enclosure refrigeration had not been developed at the time when the fountain in question was manufactured, the service engineer will be able to retain the goodwill of both the customer and the soda fountain manufacturer.

Frequently the service engineer may report this customer as a prospect for a new soda fountain to the local soda fountain distributors, and thereby profit more handsomely than he could possibly have done by the sale of a piece of tubing and an expansion valve.

In checking a complaint on warm water, it is always advisable to draw two or three glasses in order to make certain that the complaint did not refer to the first glass drawn after the draught arm had not been used for 15 minutes or more. If the complaint is legitimate, that is, warm water is continuously drawn, the following list of causes should be checked.

1. WATER COOLING SYSTEM OVERLOADED

On a two-boiler soda fountain, the water cooling capacity is limited to an average of approximately 2 gallons per hour with 80° F. inlet water and to an average of 3 gallons per hour with 70° F. inlet water. In a busy luncheonette fountain, these figures are frequently exceeded and warm water will be the result.

The customer must be handled very diplomatically under these circumstances. It should be pointed out that at the time he purchased the soda fountain, his trade was relatively small, and as a result the water cooling capacity of the fountain was sufficient to handle his requirements. However as his trade increased and he included luncheonette service, requiring the use of a large amount of water, he made no provision to increase the water cooling capacity of his fountain. As a result he now finds that his capacity is not enough and should be supplemented with additional equipment. Such a customer is an excellent prospect for a precooling system.

There are many good prospects in all types of drug stores to whom the service engineer can frequently make sales of water precooling equipment to supplement the existing capacity of soda fountains. In no case should the precooler be connected to the existing refrigerating machine. A separate refrigerating machine should always be used for the precooler.

2. ADJUSTMENT OF PRESSURE REGULATING VALVE

If the adjustment of the pressure regulating valve does not permit sufficient ice, all of the ice will be melted during the peak load.

The correct solution is to reduce the temperature in the sweet water bath boiler by means of the pressure regulating valve, thereby permitting a larger ice formation to build up during the running cycle. To maintain the same ice cream temperature in the ice cream brine tank, the cut-in point of the refrigerating machine should be slightly reduced to compensate for the increased length of cycle caused by the larger ice formation.

3. WATER LEVEL TOO LOW

If there is a leak in the water bath or if the water level has been lowered for other reasons, so that all of the cooling coil and cooling cylinder is not immersed in the water bath, the water cooling capacity of the system will be reduced greatly. The water level should always be approximately 1 inch above the top of the boiler or up to the height of the overflow installed in the compartment by the manufacturer.

4. Fuse blown
5. Stuck-open float valve
6. Stuck shut float valve
7. Shortage of gas
8. Plugged strainer
9. Valves not open.

All of the above causes are exactly the same as the similar items discussed in the previous article under the complaint of the ice cream being too soft. The remedies are also exactly the same as were previously discussed.

It is frequently found that a complaint such as stuck-open float valve in a sweet water bath boiler will show up as a complaint of soft ice cream. This is because the customer is more concerned with the temperature of his ice cream than he is with the temperature of his water.

It is quite possible that his water is warm at the same time that his ice cream is soft, both caused by a stuck-open water bath boiler float valve. Always check both boilers before jumping to conclusions.

It should be remembered that any condition which might cause continuous operation of the refrigerating machine at a relatively high suction pressure will no doubt be received as a complaint on the ice cream temperature although the basic cause of the trouble may be with the water bath boiler.

Detroit Real Estate Men Hear Ordinance Plan

DETROIT—Proposed Detroit city ordinance to cover the operation and maintenance of refrigeration systems was explained to the Detroit Real Estate Board and guests at a luncheon meeting here last week by H. H. Mills, of the Department of Building and Safety Engineering of the City of Detroit.

Mr. Mills, who supervised the drafting and preparation of the proposed ordinance, outlined the background of the code, pointing out to the real estate men that it was made necessary because a revised code covering the installation and use of refrigerating systems abrogates the existing statute regulating the operating and servicing of systems.

Thus a need was created for a new ordinance to govern this work, Mr. Mills explained.

The proposed ordinance is printed in full in AIR CONDITIONING & REFRIGERATION NEWS, Oct. 19.

Before the code is submitted for final approval by the city council, Mr. Mills said, meetings will be held with various groups representative of the different types of businesses and organizations who will be affected by the law.

Purpose of these meetings is to obtain the divers viewpoints from all of the groups, Mr. Mills said, adding that the meeting with the real estate board is the first of what he hopes will be a series of similar discussions.

In drafting the proposed ordinance, Mr. Mills told the real estate men, it was necessary to group refrigerants into three principal classifications, and to allude to each group specifically in certain instances.

The three classes of refrigerants are: Group 1—non-toxic, including carbon dioxide and the Freon refrigerants; Group 2—toxic, including ammonia, methyl chloride, and sulphur dioxide; Group 3—explosive, including isobutane.

"The ordinance was drawn up," Mr. Mills explained, "to anticipate the demands from users, manufacturers, and operators."

Systems are regulated by the ordinance according to the use to which they are put; i.e. institutional use, such as in hospitals and jails, residential and commercial use, such as in apartment homes, restaurants, stores; and "assembly" use, such as in theaters, auditoriums, and the like.

The real estate men apparently were keenly interested in that paragraph of the ordinance which states "Licensed Engineers or Operators of refrigeration systems, where required by this ordinance, shall be in direct charge of the system or systems at all times such system or systems are in operation and shall be responsible for no other duties which may detract from the time or attention required for the safe operation of the system."

The men were interested in knowing exactly what this paragraph would require in the way of number of operators, duties, "free" time, and other involved factors.

Several of the board members said they would be interested in attending future meetings with other groups to discuss further the proposed ordinance.

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Commercial Refrigeration

New Booklet Offers Suggestions For Design & Equipping of Refrigerated Fruit Storages

CHICAGO—Advantages and construction plans of modern concrete refrigerated fruit storage buildings are described in an illustrated booklet prepared by Portland Cement Association.

Intended particularly for the benefit of the fruit grower, the booklet suggests location and size of storages, tells how concrete walls and floors are the best constructed, gives insulation requirements, describes proper roof construction, explains refrigeration and management considerations, proposes most efficient refrigerating equipment, and lists construction and operation costs.

Photograph illustrations show exterior and interior views of a typical concrete storage plant, and there are two full pages devoted to blue-print drawings of a 5,000-bu. fruit storage showing floor plan, giving detailed lay-out, dimensions, construction details, and other building information.

Important points in the location of the refrigerated storage are that it be in plain view of a highway to attract passing motorists, and that it be set in a plot with attractive landscaping and ample parking room.

Size of the storage depends upon individual needs as influenced by the extent of the orchard, time and method of marketing, and other factors.

2½ FEET PER BUSHEL

"It is customary to plan 2½ cu. ft. of space per bushel of fruit to allow for lost space around equipment, in alleys, and for air circulation over and through the stored fruit," the booklet states.

"Because the building of a refrigerated storage calls for a considerable amount of technical knowledge, it is recommended that an engineer and contractor experienced and qualified in concrete construction be employed for the work.

"The concrete foundation should extend to a depth of 3 ft. below grade; deeper if necessary to place the footing below frost level.

TEMPERATURES

"The refrigerated fruit storage must be well insulated if satisfactory and economical operation is to be secured. Apple storages are ordinarily maintained at temperatures from 32 to 35° F.

"Assuming a 35° temperature inside the storage, temperature differences between the inside and outside surfaces of different parts of the building will be: floor, 20°; walls, 65°; roof, 90°.

"Since these temperature differences exist for considerable periods of time, it is desirable to use different thicknesses of insulation for the floor, walls, and roof.

INSULATION

"Where temperatures between 32 and 35° F. are to be maintained inside the storage, the recommended standard thicknesses of insulation are: floor, 2 inches; walls, 3 or 4 inches; roof, 4 or 5 inches.

"Every effort must be made to keep the insulating material dry. Moist materials lose much of their insulating value. There is a tendency for moist air from the outside to penetrate the wall until it reaches the colder insulation, where it condenses. For this reason, wall treatments specified should be carefully carried out."

The pamphlet advises two coats of waterproof portland cement paint or wash to protect the exterior surface of the concrete masonry wall.

As a protective covering for the insulation on the interior of the cold storage, the pamphlet recommends portland cement plaster.

FEW WALL OPENINGS

Wall openings should be confined to as few doors and ports as necessary for convenient working arrangements.

Experience has proved that homemade refrigerator doors are not ordinarily satisfactory, the booklet states, and commercial doors of an approved type should be used.

"An eight-inch metal exhaust ventilator located in the roof on the opposite side of the storage from the cold air unit has proved efficient in exhausting enough air to keep the fruit in good condition," it is stated in the booklet.

"Fresh air enters through a 4-inch diameter wall opening near the cold air unit.

"Orchardists have found that there are three important factors in the successful operation of a refrigerated fruit storage.

"1. It will pay to place only high quality fruit in storage. The apples or other fruit must be mature, sound, be free from disease, and have no bruises or other mechanical injury. Over-mature fruit is particularly to be avoided.

"2. Prompt cold storage of the fruit after harvest is very important. Operators and other fruit specialists report that where fruit goes into the refrigerated storage at 32° F. on the same day it is harvested there is a great improvement in the keeping quality of the fruit.

HUMIDITY—HIGH

"3. Maintain proper air condition of the storage. This means a high relative humidity of about 90%, a temperature of about 32° F., and enough ventilation and air motion to create most favorable conditions for preserving the fruit."

The booklet points out that different conditions are required by different kinds of fruit, and a table is given showing these various requirements.

"In general," continues the booklet, "high humidities are needed to prevent excessive shrinkage of the fruit. In some cases, the refrigerating system will not maintain humidities quite high enough.

"To overcome this difficulty, some operators sprinkle the floor frequently with water, particularly during the loading period. Others have found it advisable to install a small motor-driven fan which blows a fine mist from a tiny spray nozzle directly into the air current.

CIRCULATION NECESSARY

"To insure good circulation of cold air within the stacks of fruit, it is important to leave an air space of about 1½ feet between the fruit and the ceiling.

"Also, the crates or boxes are usually set up on 4 x 4-inch strips so that air motion under the stacks of fruit may be improved. Many operators prefer to store in containers that are quite open to facilitate cooling.

"Modern refrigerated fruit storages are commonly cooled by one of two types of refrigerating machinery. These may be termed the blower system and the room coil system.

"The blower system may also be of two different kinds. Perhaps the most common is the large floor type of cold air unit. In this system the cooling coils are contained in a compact cabinet and a fan forces air through the coils.

"The coils are cooled by one of several kinds of circulating refrigerant. Air for the blower unit is drawn in near the floor, passes over the cooling coils, and is expelled along the ceiling.

DEFROSTING PLAN

"With some cold air units it is necessary to defrost the coils, perhaps once a day, during the storage season and more often during loading time.

"Allowing the blower fan to operate after the compressor has been stopped will defrost the coils if the storage temperature is up around 38° F.

"Often two cold air units are favored so that one may be in operation while the other one is being defrosted.

"Some blower systems require no defrosting. In these machines a brine spray is employed over the cooling coils which prevents formation of frost.

"Sometimes smaller storages are cooled with a series of very small cold air blower units which are built much like small hot water heaters for automobiles, that is, with a fan directly behind the bank of finned coils.

"In the room coil system of refrigeration, the coils of cooling pipes are mounted along the walls or ceiling of the storage room.

"Air motion and circulation with this system are apt to be sluggish and for this reason many operators install fans to improve the circulation of air through the stacks of fruit.

"The exact type and size of refrigerating equipment required will depend upon individual conditions."

The booklet concludes with an explanation of how construction and operation costs may be estimated, and lists several advantages of a refrigerated storage citing actual instances and endorsements.

COST ESTIMATES

Annual operating expense, the booklet estimates, is about $300, of which $225 is for electric power at 1.5 kwh. a bushel at three cents a kwh.

Total construction costs for storages, including refrigeration equipment, generally range from $1 a bushel for smaller buildings to 75 cents or less for larger storages.

Annual fixed charges, including interest, depreciation, repairs, taxes, and insurance on a $5,400 investment in building and equipment average a little more than $500, the booklet states.

Refrigerated Barges To Carry Florida Fruit

TAMPA, Fla.—Florida citrus fruit soon will be shipped almost entirely in refrigerated barges up the Mississippi River to midwestern markets, L. D. Aulls, traffic manager of the Florida Citrus Exchange here, recently announced.

The fleet of barges, Mr. Aulls said, will be provided by the Inland Waterways Commission, and will ply between New Orleans and St. Louis, and probably as far north as Cairo, Ill. or Evansville, Ind.

There will be six barges, each diesel-powered, and each costing about $200,000, it was stated.

Fruit will be shipped from Tampa to New Orleans in refrigerated ships now in regular service, and trucks will carry the fruit from the barges throughout territories on each side of the Mississippi about 400 miles wide, Mr. Aulls said.

From the barge terminals, trucks will haul the fruit through Indiana and Illinois as far as Chicago.

Mr. Aulls predicted a saving in freight rates to Florida shippers of from 15 to 33% for the transportation to markets in the St. Louis area. Present rail rate from Lake Wales, Fla. to St. Louis is 75 cents a box of fruit, he said, and by barge the cost would be about 50 cents. The trip from Tampa to St. Louis will be made in from 10 to 13 days.

Fruit is being shipped from Tampa to European ports in refrigerated steamers at present in from 17 to 24 days without harmful effect.

Temprite Gives Tips On Unit Selection

DETROIT—Diagrams of mechanical features, photographs, and drawings of actual installations, specifications and capacity ratings, descriptions and illustrations of miscellaneous equipment, and tips on the selection, installation, and operation of various types of units all go to make up the latest catalog issued by Temprite Products Corp. on its instantaneous beer and beverage coolers.

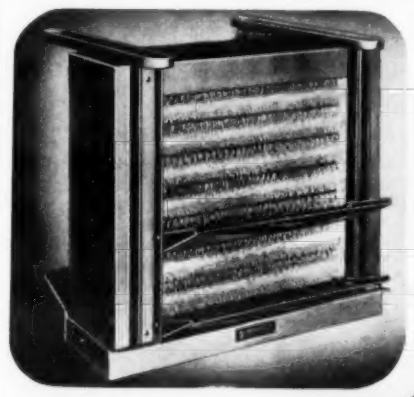
Under the heading "Selection of Cooler and Condensing Unit for Beer Dispensing Installations," the catalog divides beer cooler prospects into three classifications according to dispensing practices. The needs of each type of prospect are discussed, and equipment to satisfy those demands is suggested.

Installations pictured include those in such well-known places as the International Casino, New York City; S.S. Malolo, an ocean liner plying between San Francisco and Honolulu; and Goebel's Brewery, Detroit.

24-Ft. Display Case To Show Frozen Foods

CASPER, Wyo.—Installing a 24-foot case for the display of frozen foods, Casper Commissary will be the first retail establishment in Wyoming to handle frozen-pack fruits, vegetables, meats, fish, poultry, and dairy products. It will deal in Birds Eye frosted foods.

THE BUYER'S GUIDE



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APPLIANCE SELLING TODAY—A manual of sales ideas and promotion plans for distributors, dealers and salesmen

"APPLIANCE SELLING TODAY" is edited especially for the appliance distributor, dealer, and salesman.

This 128-page book is packed with hundreds of sales ideas, promotion methods, and merchandising plans tested and proved in actual use by dealers in all parts of the country.

"Appliance Selling Today" was written out of the actual experiences of electrical appliance dealers of all types and sizes, in all parts of the country. The reports show how such dealers have successfully applied various sales and management methods.

The records were compiled by staff members of Air Conditioning & Refrigeration News and its field correspondents, but the ideas and thoughts presented came from appliance dealers.

The editors of Air Conditioning & Refrigeration News believe that "Appliance Selling Today" is of greatest value to the dealer right now, for the reason that in no other period of appliance selling history has the dealer been so much "on his own."

"Appliance Selling Today" (Manual R-1) contains 128 pages, size 8½ x 11, and costs $1.00 in the United States.

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Engineering

History of the Evaporative Condenser Traced By Hoesel In Patent Study

By A. F. Hoesel, Chief Engineer, Peerless of America, Inc.

The widespread and increasing use of refrigeration for air conditioning has brought about an increased interest in means to economize water used for refrigerant condensing purposes.

In many cases, especially in localities having comparatively high water rates, the reduction in amount of condensing water used for a particular application results in a material reduction of refrigerating plant operating costs.

In some localities, the water and the sewer mains, having been installed years ago—before the present refrigeration water demands could have been foreseen—are proving inadequate to take care of the refrigeration as well as the former common demand. In view of this, certain metropolitan centers have instituted, and others undoubtedly shall institute legislation to curb the usage of water for refrigerant condensing purposes.

An evaporative condenser is an ideal device, as compared with the space requirements of spray ponds and cooling towers, for dissipating the condenser heat; and in general it comprises a casing having an air inlet and an air outlet, a water sump at the bottom of the casing, a condensing coil situated in the casing, means to spray water taken from the water sump and generally sprayed over the condensing coil, and means to circulate air over the water spray.

Since the entering air has a relative humidity much lower than saturated, and since the condensing coil tends to heat the water, the circulated air tends to rise in temperature and also the relative humidity because of its contact with the sprayed water, part of which is evaporated, thereby cooling the remainder which drops into the sump again.

While the foregoing is a bare outline of an evaporative condenser, there have been many variations, in detail, which have been the subjects of diverse patents.

Contrary to popular opinion, the evaporative condenser is a very old device. A search of domestic patents reveals that Patent No. 127,180, dated May 28, 1872, and issued to S. B. Martin and J. M. Beath, appears to be the domestic progenitor of evaporative refrigerant condensers. This particular patent was reissued as Reissue Patent No. 4,992, dated July 16, 1872.

As a reissue patent replaces the original patent, in order to broaden the claims of the original patent (providing the inventor makes such application for reissue in compliance with the statutory requirements), we shall be concerned with only the Reissue Patent No. 4,992.

Claim 5 reads as follows: *"The combination, in a condenser of an ice machine, of the following elements, i.e., means for conducting the vapor to be condensed into and through the condensing chamber, means for discharging water in spray, and means for creating a current of air, substantially as described."*

CONDENSER IS OLD

While the import of the phrase *"substantially as described,"* under the patent rules in effect at that time, indicates a possibility of a prior similar combination, although of different construction than shown in Martin's and Beath's drawings or the disclosure of their specification, we are not primarily concerned therewith. We are merely concerned with the fact that the evaporative condenser, per se, is old in the refrigerating art.

The foreign literature, of several decades past, relating to refrigeration frequently makes reference (pictorial and descriptive) to the so-called Linde Disc cooler, shown in cross-section herewith and designated as Fig 109 and Fig. 110, because so designated in Modern Refrigerating Machinery by Hans Lorenz, published 1905.

This Linde Disc cooler, so called, had quite an extensive use in England, France, and Germany as an air cooler. Undoubtedly, this was the primary purpose of the first devices so constructed.

Lorenz states, in part: *"Finally we must mention the direct union of the submerged condenser with the after-cooling apparatus in Linde's disc cooler (Figs. 109 and 110) which works exclusively with air propelled artificially. The condenser-worms lie in a rectangular iron box, W, in the cooling water, which is kept in circulation by a stirrer, R, and in which a number of metal discs, S, are immersed to about one third of their diameters; these discs rotate slowly about a horizontal axis, X, and so are kept continuously wet. The layer of water upon their surfaces then evaporates under the influence of a power air-current driven between the discs by means of the ventilator, V."*

COIL SUBMERGED

This is one of the first references to the condenser coil being submerged in water, and most likely such usage occurred because of the simplicity of using the Linde disc cooler interchangeably as an air cooler or a condenser.

It is interesting to note that the original Martin and Beath condenser did not have submerged condenser pipes, and the majority of evaporative condensers made today do not have the condenser pipes submerged, although in some cases the refrigerant receiver may lie in the water sump.

On Sept. 8, 1908, U. S. Patent 898,400, for a rotary refrigerating machine was granted to Marcel Audiffren and Henri Singrun. Audiffren and Singrun were probably the originators of the sealed compressor as several patents relating thereto had been previously granted to them.

While machines constructed according to their patents did find application, the advent of the bellows or similar shaft seals applied to the conventional compressor overcame the obstacle of refrigerant leakage at a greatly decreased cost of construction as well as a much lesser bulk. Therefore, the Audiffren-Singrun machine became obsolete.

Their specification states, in part: *"Finally the condenser is covered by a hood 5 which reaches down into the cooling water. This hood is provided with a shaft 6 furnished with a ventilating fan 7, driven by the shaft of the machine or in any convenient manner; and with openings 8 for the circulation of the air. The air passing across the water in a finely divided state caused by the rapid rotation of the condenser b effects a considerable cooling of the water and consequently reduces the amount of water required for condensation. Also the air drawn in by the fan 7 through the openings 8 at the opposite side of the casing 5 is cooled to a considerable extent by being drawn over the evaporator c. This, of course, aids considerably in cooling the water sprayed from the rapidly rotating condenser."*

While all of the foregoing references were undoubtedly familiar with the fact that the continued operation of their condensers would result in the evaporation of appreciable quantities of water, yet nowhere in their drawings do we find any provision for the automatic replenishment of such evaporation. Possibly, they might have considered that such automatic replenishment was obvious and could be accomplished by float valves, which were long old in the mechanical arts.

On Aug. 30, 1910, U. S. Patent No. 968,909, for condenser, was granted to E. T. Winkler. The drawings show a float valve controlling the water level in the condenser; and his specification relates, in part: *"17 designates a supply pipe, which empties into pan 1 and the flow through which is controlled by an automatic valve 18 having a float 19 for controlling the valve opening. . . . With a condenser of this construction, the water, which is the usual cooling agent used, may be used until it is depleted by evaporation, when a fresh supply may be taken in from the pipe 17, the automatic valve controlling the level of the water in the pan, through the medium of the float 19."*

While there are a large number of domestic patents relating to evaporative condenser details, the above-cited references show that the fundamentals were well known and disclosed long ago.

The Linde Disc Cooler Was Used Extensively By Europeans

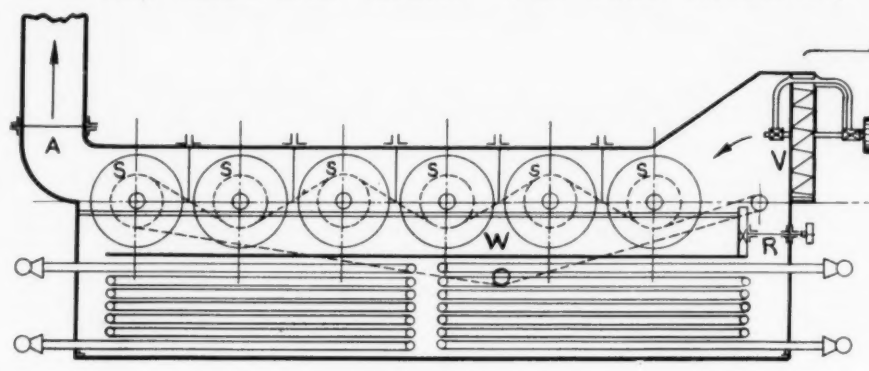


Fig. 109

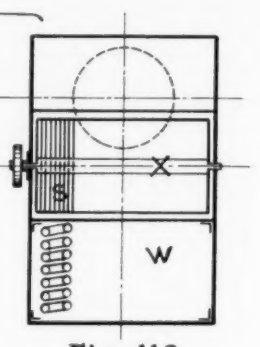
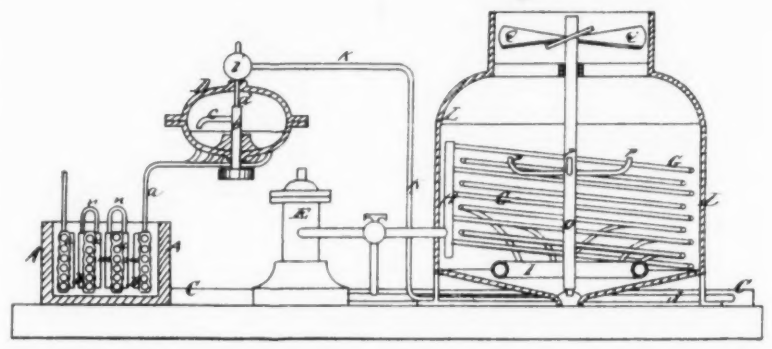


Fig. 110

Reissue Patent No. 4992—the 'Progenitor'

Fig. 2.



Patent No. 968,909

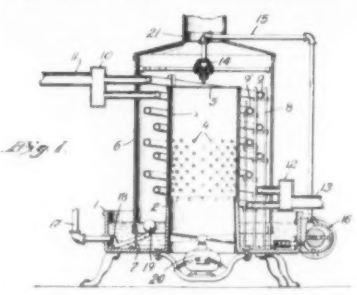


Fig 1

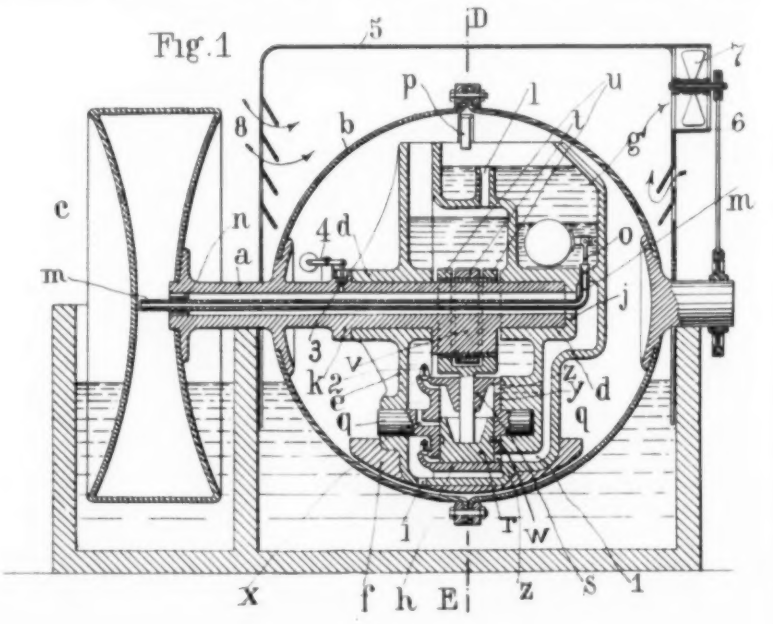
Hinde & Dauch Building Plant In Detroit

DETROIT—A modern corrugated box factory, expected to be in operation about April 15, 1939 and to employ over 200 people, is being constructed here by Hinde & Dauch Paper Co., Sandusky, Ohio, manufacturer of "Thermocraft" insulation, according to an announcement by Sidney Frohman, president and general manager.

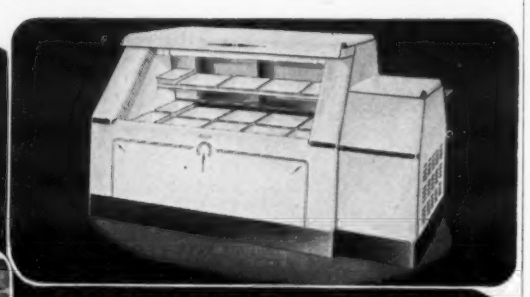
A one-story steel and concrete building 510 feet long and 200 feet wide, the new plant will be devoted to manufacture of various types of shipping and display boxes for Detroit's automotive and other diversified industries. Charles U. Harvey, who has been the company's Detroit representative for over 15 years, will head the new operation as district manager for Michigan, it was announced.

Patent No. 898,400—Rotary Sealed Compressor

Fig. 1



THE BUYER'S GUIDE



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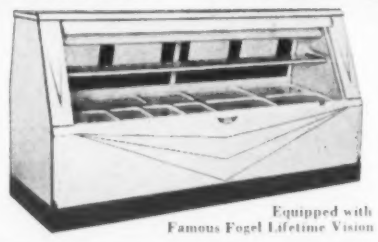

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Not merely a shallow "selling point" but a legitimate **exclusive feature**—backed by a **real insurance policy** issued by our Company to the purchaser of every Fogel case.

A recognized asset to buyer and seller alike.

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Interesting distributor proposition to qualified firms.

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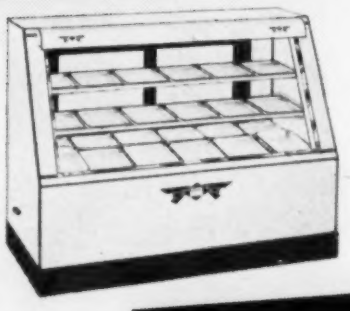
1938 CASE AND COOLER HEADLINERS



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Equipment and Compressor Sales go together. Sell both on one contract.

Write for catalog and franchise details, mentioning territory desired.

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Manufacturers of Refrigerated Display and Storage Equipment

SHERER DISPLAY AND STORAGE EQUIPMENT FOR RETAIL FOOD STORES SHERER-GILLETT CO MARSHALL MICHIGAN

Sales Figures

44,683 Household Electric Refrigerators Sold In October By 17 Nema Member Manufacturers

The following 17 companies reported sales to the Refrigeration Division of the National Electrical Manufacturers Association (Nema) on household electric refrigerators for the month of October, 1938:

Apex Electrical Mfg. Co., Crosley Corp., Edison General Electric Appliance Co., Inc., Fairbanks, Morse & Co., Frigidaire Div. General Motors Corp., General Electric Co., Gibson Electric Refrigerator Co., Johnson Motors Co., Kelvinator Div. Nash-Kelvinator Corp., Leonard Div. Nash-Kelvinator Corp., Norge Div. Borg-Warner Corp., Sparks-Withington Co., Stewart-Warner Corp., Sunbeam Electric Mfg. Co., Uniflow Mfg. Co., Universal Cooler Corp., and Westinghouse Electric & Mfg. Co.

The sales of the reporting companies include units manufactured for the following concerns: Montgomery Ward & Co., Potter Refrigeration Corp., and Sears, Roebuck & Co.

SALES FOR OCTOBER, 1938	Domestic	Canadian	Other Foreign	Total World
Lacquer (Ext.) Cabinets Complete				
1. Chest	108	...	196	304
2. Less than 3 cu. ft.	...	108	10	118
3. 3 to 3.99 cu. ft.	1,765	...	958	2,723
4. 4 to 4.99 cu. ft.	8,224	442	3,089	11,755
5. 5 to 5.99 cu. ft.	5,065†	383	2,512	7,960
6. 6 to 6.99 cu. ft.	9,939	206	1,227	11,372
7. 7 to 7.99 cu. ft.	1,941†	36	364	2,341
8. 8 to 9.99 cu. ft.	1,105	13	101	1,219
9. 10 to 12.99 cu. ft.	7	...	6	13
10. 13 cu. ft. and up	...	...	...	...
11. Total Lacquer	28,154	1,188	8,463	37,805
Porcelain (Ext.) Cabinets Complete				
12. Up to 4.99 cu. ft.	9	3	33	45
13. 5 to 5.99 cu. ft.	494	15	185	694
14. 6 to 6.99 cu. ft.	1,548	17	124	1,689
15. 7 to 7.99 cu. ft.	758	1	53	812
16. 8 to 9.99 cu. ft.	845	3	76	924
17. 10 to 12.99 cu. ft.	116	...	26	142
18. 13 cu. ft. and up	220	2	28	250
19. Total Porcelain	3,990	41	525	4,556
20. Total—Lines 11 and 19	32,144	1,229	8,988	42,361
21. Separate Systems ¼ hp. or less	148†	73	2,183	2,108
22. Separate Household Evaporators	48	123	43	214
23. Total—Lines 20, 21, and 22	32,044	1,425	11,214	44,683
24. Condensing Units ¼ hp. or less	281	26	404	711
25. Cabinets—No Systems	43	1	10	54
Index Value* of Total Dollar Sales	96.4	216.0	105.0	99.9

*Based on weighted sales for 1934, 1935, and 1936. †Includes sales and credits.

New York & California Ahead In October Sales By States

States and Territories	Quantity Household Low Sides October	Cumulative
Alabama	195	10,070
Arizona	41*	2,793
Arkansas	65	6,394
California	4,140	84,129
Colorado	110	8,167
Connecticut	393	15,514
Delaware	59	2,360
District of Columbia	416	13,904
Florida	1,855	15,173
Georgia	187*	13,763
Idaho	27	3,972
Illinois	2,574	94,582
Indiana	567	26,228
Iowa	212	20,603
Kansas	150	12,453
Kentucky	254	13,611
Louisiana	496*	15,147
Maine	43	4,994
Maryland	636*	14,643
Massachusetts	1,238	44,657
Michigan	1,290	47,152
Minnesota	911	28,463
Mississippi	140*	5,664
Missouri	683*	32,470
Montana	56	3,100
Nebraska	103	8,665
Nevada	34	1,250
New Hampshire	31	3,190
New Jersey	1,580	43,469
New Mexico	35	2,126
New York	6,464	153,020
North Carolina	319	19,914
North Dakota	75	2,565
Ohio	1,414	58,828
Oklahoma	184	12,707
Oregon	162	9,066
Pennsylvania	2,086	99,711
Rhode Island	76	4,314
South Carolina	119	8,369
South Dakota	40	2,697
Tennessee	335	16,512
Texas	807	52,697
Utah	106	6,414
Vermont	24	2,733
Virginia	243	16,074
Washington	251	18,016
West Virginia	179	10,071
Wisconsin	613	23,409
Wyoming	26	1,442
Total United States	**32,044**	**1,117,265**
Canada	1,425	39,903
Other Foreign (Incl. U. S. Possessions)	11,214	109,386
Total For World	**44,683**	**1,266,554**

*Includes sales and credits.

Oct. Commercial Sales Near 1937 Totals

(Concluded from Page 1, Column 1)

according to estimates by the NEWS.

Pressure water coolers and bottled beverage coolers again led the list in the commercial field, both of these items surpassing shipments made in the corresponding month of last year. Water cooler sales amounted to 684 units, as compared with 350 last October, and beverage cooler sales totaled 650 units to pass the 538 reported in the month a year ago.

Sales of ice cream cabinets also were near comparable 1937 totals, the October figure being 498 units against 524 last year. Self-contained air conditioner shipments were down as compared with 1937 totals for the first time this year, the October total being 202 units as compared with 349 last year.

Shipments of commercial condensing units totaled 4,541 units during the month, as compared with 4,861 units in the same period of 1937.

October household refrigerator sales dropped in comparison with 1937 marks after two months of comparative improvement. August sales were 23% under last year's total, and September sales were down 20%. For the first 10 months of the year, world shipments are estimated at 1,332,900 units as compared with 2,343,400 last year, a decline of 43%.

Shipments by 17 companies reporting to the Refrigeration Division of National Electrical Manufacturers Association totaled 44,683 units in October, compared with 72,490 in the same month last year. In the U. S. only, October shipments by Nema members amounted to 32,144 units, compared with 63,563 last year.

In the tabulation of sales by states during the month, New York led with 6,464 units, and California was second, with 4,140 units. New York leads all states in sales for the year, followed by Pennsylvania and Illinois.

6,628 Commercial Refrigeration Systems Sold To Distributors In October By 14 Manufacturers

The following report of commercial refrigerating and air-conditioning equipment sales for October, 1938 was made to the Commercial Refrigeration Section of the National Electrical Manufacturers Association (Nema) by the following 14 companies:

Brunner Mfg. Co., Carrier Corp., Crosley Corp., Frigidaire Corp., General Electric Co., Gibson Electric Refrigerator Co., Kelvinator Div. Nash-Kelvinator Corp., Merchant & Evans Co., Norge Div. Borg-Warner Corp., Servel, Inc., Uniflow Mfg. Co., Universal Cooler Corp., Westinghouse Electric & Mfg. Co., and York Ice Machinery Corp.

SALES FOR OCTOBER, 1938	Domestic Quantity	Domestic Value	Canadian Quantity	Canadian Value	Other Foreign Quantity	Other Foreign Value	Total World Quantity	Total World Value
1. Bottle Water Coolers—Complete	100	$ 7,003	3	$ 191	34	$ 2,162	137	$ 9,356
2. Pressure Water Coolers—Complete	565	58,574	4	340	115	11,830	684	70,744
3. Water Coolers—Low Side Only	36	3,369	....	....	3	195	39	3,564
4. Ice Cream Cabinets—Complete	418	68,961	4	490	76	11,419	498	80,870
5. Ice Cream Holding Cabinets Only (Remote)	83	11,196	3	282	....	....	86	11,478
6. Bottled Beverage Coolers—Complete	556	64,209	8	788	86	8,680	650	73,677
7. Beverage Coolers (No High Sides)	77	6,530	....	....	5	218	82	6,748
8. Milk Coolers—Complete	....	....	....	....	....	....	....	....
9. Milk Cooling Cabinets (No High Sides)	....	....	....	....	....	....	....	....
10. Self-Contained Air Conditioners Air Cooled—All Sizes	8*	917*	....	....	128	26,884	136	27,801
11. Self-Contained Air Conditioners Water Cooled—Under 2 Hp.	1*	70½*	....	....	4½*	8,851*	42	9,555
12. Self-Contained Air Conditioners Water Cooled—2 Hp. and Up	19	12,178*	....	....	5	3,000	24	15,178
13. Air Conditioners—Central Stations 5-Ton Capacity and Over	60	41,004	....	....	7	9,683	67	50,687
14. Air Conditioners—Floor Type (No High Sides)	46	26,505	....	....	10	4,745	56	31,250
15. Air Conditioners—Ceiling (Cooling Only—No High Sides)	52*	6,566*	....	....	6*	614*	46	5,952
16. Air Conditioners—Ceiling Type (Equipped for Heating—No High Sides)	15	6,512	....	....	1	560	16	7,072
17. Air Conditioners—Residential Type (No High Sides, Boilers, or Furnaces)	39	7,579	....	....	16	3,600	55	11,179
18. Condensing Units Less Than ⅓ Hp.	712*	32,911*	2	111	122	6,574	836	39,596
19. Condensing Units—⅓ Hp.	1,153	76,274	22	1,873	169*	14,581*	1,344	92,728
20. Condensing Units—½ Hp.	591	62,900	13	1,683	208	24,349	812	88,932
21. Condensing Units—¾ Hp.	509	69,155	17	2,691	83*	10,899*	609	82,745
22. Condensing Units—1 Hp.	268	43,160	11	1,857	81	11,514	360	56,531
23. Condensing Units—1½ Hp.	175	35,883	5	876	48	11,219	228	47,978
24. Condensing Units—2 Hp.	74	17,214	....	....	17	3,893	91	21,107
25. Condensing Units—3 Hp.	39	10,511	6	1,995	42	11,167	87	23,673
26. Condensing Units—5 Hp.	30	13,594	1	238	9	3,694	40	17,526
27. Condensing Units—7½ Hp.	7	4,245	....	....	5	2,853	12	7,098
28. Condensing Units—10 Hp.	17	12,183	....	....	3	2,325	20	14,508
29. Condensing Units—15 Hp.	27	22,865	1	963	6	6,112	34	29,940
30. Condensing Units—20 Hp.	17	17,295	....	....	0*	116*	17	17,411
31. Condensing Units—25 Hp.	7	6,786	....	....	5	7,050	12	13,836
32. Condensing Units—30 Hp.	11	16,211	....	....	....	....	11	16,211
33. Condensing Units—40 Hp.	18	31,653	....	....	1	1,570	19	33,223
34. Condensing Units—50 Hp.	7	15,944	....	....	2	3,800	9	19,744
35. Total—Lines 18 to 34 Inclusive	3,662	488,784	78	12,287	801	121,716	4,541	622,787
36. Total—Lines 1, 2, 4, 6, 8, 10, 11, 12, 35	5,329	....	97	....	1,202	....	6,628	....
37. Commercial Evaporators (Not Reported Above)	1,583*	53,255*	112	3,753	384	17,202	2,079	74,210
38. Air-Conditioning Evaporators (Not Reported Above)	94	16,003	....	....	....	....	94	16,003
39. Total Commercial & Air Conditioning	....	$878,441	....	$18,131	....	$212,429	....	$1,109,001

*Includes sales and credits.

LARKIN Instantaneous

Water Coolers will increase your sales . . .

For Bottling Plants, Bakeries, Drinking Water Systems and Other Cooling Requirements.

write today for complete engineering and sales data

31 Sizes

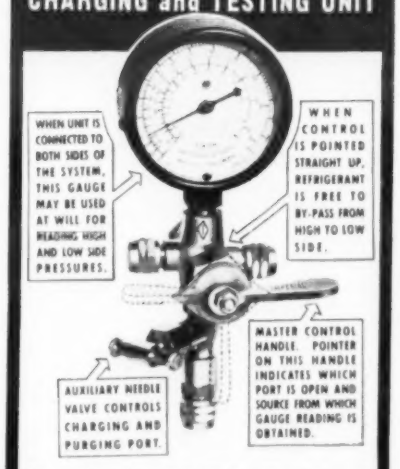
Hundreds of Satisfied Users

Built only by

LARKIN COILS, INC.

General Office and Factory
519 FAIR STREET, S. E., ATLANTA, GA.
NEW YORK FACTORY, 102 FIFTH AVE.

HI-LO — a new type of CHARGING and TESTING UNIT


WHEN UNIT IS CONNECTED TO BOTH SIDES OF THE SYSTEM, THIS GAUGE MAY BE USED AT WILL FOR READING HIGH AND LOW SIDE PRESSURES.
WHEN CONTROL IS POINTED STRAIGHT UP, REFRIGERANT IS FREE TO BY-PASS FROM HIGH TO LOW SIDE.
MASTER CONTROL HANDLE. POINTER ON THIS HANDLE INDICATES WHICH PORT IS OPEN AND SOURCE FROM WHICH GAUGE READING IS OBTAINED.
AUXILIARY NEEDLE VALVE CONTROLS CHARGING AND PURGING PORT.

No. 500-C Imperial Hi-Lo Charging and Testing Unit, complete with 2½" gauge. Each $5.25
No. 501-C Same, less gauge. Each $3.35

Combines all the advantages of a double gauge unit with the lightness, compactness and ease of handling of a single gauge unit . . .

● This is an entirely new type of charging and testing unit which uses a single gauge and a single valve for reading pressures on both sides of the system. It is totally different in operation from the ordinary single gauge unit, and it will do everything a double gauge unit will do.

Offers the following special advantages:

1. When connected to both sides of the system it permits reading the pressure on either the high side or the low side at any time with a single gauge and a single valve.
2. It permits by-passing at any time without capping the charging and purging port.
3. It may be used separately on either the high side or the low side with exceptional convenience.
4. It is considerably lighter than other units for similar work, fits into closer space and is easier to carry.

This unit can be used for the same variety of purposes as any double gauge or any single gauge unit. Method of operation is simple and convenient (see illustration at left). Once you try the new HI-LO unit we believe you'll agree that it's the handiest and most efficient charging and testing unit you ever used!

Write for new circular.

IMPERIAL BRASS MFG. CO.
565 S. Racine Ave., Chicago

ORDER FROM YOUR JOBBER

IMPERIAL Air Conditioning and Refrigeration Products

VALVES • FITTINGS • TOOLS • CHARGING LINES • FLOATS • STRAINERS • DEHYDRATORS

QUESTIONS

Wants Sales Book For Export Field

No. 3331 (Export Divison of Manufacturer, New York)—"I understand that you recently published a bound volume of articles relating to sales promotion ideas and selling plans that have appeared in REFRIGERATION NEWS from time to time.

"We are very anxious to obtain such a book to send to some of our distributors in export markets. Will you please let me know whether or not you have some such book available and the cost?"

Answer: We believe that the book to which you have reference is "Appliance Selling Today," a book which we published this year.

This 128-page book is full of sales ideas and promotion plans which have been proven by actual use by dealers in all parts of the country. "Appliance Selling Today" is priced at $1.00 per copy; however, it may be secured free with a new or renewal subscription to AIR CONDITIONING & REFRIGERATION NEWS.

Addresses of Motor Brush Manufacturers

No. 3332 (Jobber, Indiana)—"Will you kindly advise us of the address of the manufacturer of the Helwig motor brushes and also the address of the Superior Carbon Co."

Answer: The Helwig motor brushes are manufactured by the Helwig Mfg. Co., St. Paul, Minn.

Superior Carbon Co is located at 9115 George Ave., Cleveland, Ohio.

Macmillan Published Book on Psychology

No. 3333 (School, Pennsylvania)—"In the April 13, 1938 issue of AIR CONDITIONING & REFRIGERATION NEWS, you commented editorially on the book 'The Psychology of Dealing with People,' written by Wendall White, of the University of Minnesota. Will you please give me the name of the publisher of this book so I may obtain a copy."

Answer: The book, "The Psychology of Dealing With People," written by Wendall White, was published by the Macmillan Co., 60 Fifth Ave., New York, N. Y.

Replacement Parts For Grunow Refrigerator

No. 3334 (Dealer, Pennsylvania)—"There is something I would like to have your help on. Could you tell me where I can get parts for a Grunow refrigerator for controls and compressor parts. I am sending a few coupons to you from the Red Book."

Answer: Write to either of the following companies for information on Grunow parts:

Grunow Authorized Refrigeration Service, Inc.
4315 West Fullerton Ave., Chicago, Ill.

Grunow Factory Authorized Service
1915 Shattuck Ave., Berkeley, Calif.

Seeks Manufacturer Of 'Republic' Line

No. 3335 (Electrical Supply Company, Ohio)—"We do not know whether you can help us out or not, but we are taking the liberty of writing to you.

"Here is what we would like to know:

"Who made or makes the 'Republic' electric refrigerator? We have one in our repair department for repair and we cannot find a single name, mark, or code number on the box to indicate who might have made it. It looks like it might be an assembled box using SO_2 as a refrigerant.

"We have searched all our trade journals and various other sources and have exhausted every means of locating the manufacturer's name. At last we got the idea that perhaps you might be able to help us out.

"If you have a booklet showing the trade names and manufacturers' names of all previously manufactured boxes, please advise us what the cost would be on same."

Answer: The 1936 Refrigeration & Air Conditioning Specifications Book, which lists all models of all makes through 1936, states that a "Republic" refrigerator was manufactured by the Republic Tool Co., 915 Valley St., Dayton, Ohio.

This company discontinued the manufacture of refrigeration units in 1934, but, according to the Specifications Book, they continued to operate a plant at the above given address.

You might write to the company at this address for any possible information about service data and parts.

This book, the 1936 Refrigeration & Air Conditioning Specifications Book, gives not only such valuable data as that given above, but gives the bore, stroke, and speed of all makes of refrigeration units as well as data on the refrigerant charge, type of controls, and belt size.

Such information is given for all makes of commercial and household refrigeration units through 1936. The data for 1937 and 1938 has not yet been made available. This book formerly sold at a cost of $3.00 per copy, but is now available at the reduced price of $2.00.

Service Data on Counter Freezers

No. 3336 (Service Engineer, Indiana)—"I have your Commercial Refrigeration Manual C-2 and like it pretty well and I want Manual C-3, but first of all I want to know where I can secure some good information and servicing data on ice cream counter freezers such as Bastian-Blessing, Mills Novelty, and others which you might be able to furnish me with. I suppose the operating principle is practically the same on all.

"Also I would like to know if Manual C-3 explains the operation of any expansion coils and thermostatic valves on two-temperature fixtures, that is, for instance, a case and cooler on different temperatures operating on one condensing unit. Do they employ a two temperature or automatic regulating valve or does the thermostatic valve take care of that.

"If you want to, you may send me Manual C-3 at once, or I will wait till I hear from you and return the cash for same."

Answer: Beginning with the Oct. 19 issue and appearing regularly in AIR CONDITIONING & REFRIGERATION NEWS, is a series of articles which offers service information on soda fountains, counter-type ice cream freezers, and ice cream cabinets.

The authors are now telling about soda fountain service, but plan to take up counter freezers as their next subject.

Concerning your second question, full information on two-temperature systems is given in Manual C-3.

Who Manufactured Moffat Refrigerator?

No. 3337 (Engineer, Illinois)—"In connection with some research work we are doing for a foreign client, we are anxious to obtain information regarding the Moffat refrigerator. So far, we have been unable to find any information on this machine or on the manufacturer of it, but we were informed by Mr. Joyce of the Refrigeration & Air Conditioning Institute that you might probably have reference to this company in your records.

"It is possible that the spelling of the name is not correct, and it is also possible, though we believe unlikely, that the name has become confused with a similar name, as for instance, the Mowat Refrigerator Co. of San Francisco.

"It also has been suggested that the name Moffat may be a trade name used on a model made for export purposes. If this is the case, we should like to have the name of the manufacturer so that we can get in touch with them."

Answer: Our records fail to reveal that a refrigerator known as the Moffat, or any like name, was ever manufactured, but it is possible that it is a brand name used by a department store or some local marketing group.

No Sales Figures For Individual Cities

No. 3338 (Utility Company, Illinois)—"On Oct. 25 we wrote you relative to statistics which appeared in the Oct. 19, 1938 issue of AIR CONDITIONING & REFRIGERATION NEWS on page 12. You show a table of sales by states, of household electric refrigerators, during the first eight months of 1938.

"The number of units sold for the state of Illinois is given, and we are inquiring if you can give us the figure for Chicago alone, or for the Chicago area, if the figure for Chicago proper is not available."

Answer: There is no available information on sales of household electric refrigerators for Chicago alone or the Chicago area. The sales are broken down by states but not by counties or cities.

India Seen as Market For Electric Blankets

No. 3339 (Distributor, India)—"We have on page 14 of the AIR CONDITIONING & REFRIGERATION NEWS for September, 1938, seen your review regarding G-E electric blankets. We have not seen anything of the type mentioned in any of the papers here. It may be that the branch of G-E here in India are not interested in such things. We shall be obliged if you will please write to the company on our behalf to send us literature and prices.

"This part of India suffers from extreme climatic conditions and it may be that if the blankets are not very expensive, good sales may be found.

"We would have written to the General Electric Co. direct but we do not know at what address to address them."

Answer: Write to General Electric Co., sales department, Bridgeport, Conn.

Monthly Sales Data On Commercial

No. 3340 (Manufacturer, Ohio)—"Each month we look forward with a great deal of interest to the data published in your paper showing the figures on commercial and domestic refrigeration production.

"We have not noticed any production figures for the months of September and October. Have we missed this, has it been late in being issued, or is it a feature that is being discontinued?

"If you have the figures available for the commercial industry we would be pleased to have them."

Answer: The sales figures on commercial refrigeration for September are published in the Nov. 16 issue of the NEWS. This information was late in being received.

History of Companies That Left Field

No. 3341 (Dealer, Florida)—"In 1932 you published a list of electric refrigerator manufacturers who had failed in business or had been taken over by other concerns.

"Although I have been a constant reader of your publication, I do not recall having seen a later and more complete list of unsuccessful manufacturers in the refrigeration industry.

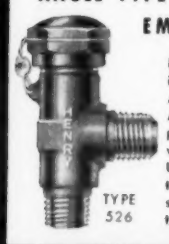
"Will you kindly advise me if you have issued a more recent list, and if not, have you a copy of your Dec. 28, 1932 issue in which this information was published? I should like very much to receive six copies of this industry data if available."

Answer: We have published something which is more than just a list of electric refrigerator manufacturers who have been in the business and then dropped out.

We have published a brief corporate history of every manufacturer who has been in the business and then dropped out. This information is published in the 1936 Refrigeration & Air Conditioning Specifications Book, which also gives complete product and specifications data on every model of every make of refrigeration equipment manufactured through 1936. This book is available at a cost of $2.00.

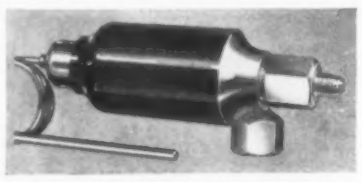
Four Years
AHEAD
OF THE FIELD
● FOUR YEARS ago Tyler originated its unique WELDED STEEL construction for commercial refrigerators. Now other makes are following. But Tyler still leads with new improvements and bigger values. Wide range of—Top Display... Double Duty... Delicatessen Cases... Reach-Ins... Walk-Ins. Sparkling streamlined beauty. Latest engineering advancements. Write today for dealer catalog.
TYLER FIXTURE CORPORATION
DEPT. E, NILES, MICHIGAN
NEW YORK OFFICE: 601 W. 26th ST.
BOSTON OFFICE: 683 BEACON ST.
CHICAGO OFFICE: 1663 W. OGDEN AVE.
TYLER
WELDED STEEL Refrigerators

MILLS
COMPRESSORS
for Commercial Use
Mills Novelty Company • 4100 Fullerton Avenue • Chicago, Illinois

HENRY
AUTOMATIC
PRESSURE
RELIEF VALVE
ANGLE TYPE WITH PUSH ROD FOR EMERGENCY RESEATING

TYPE 526
Has safety code approval. Provides instant and accurate pressure relief. Automatic closing and reseating. Angle construction and push rod permit reservicing without removing valve or pumping down system. Used from either high or low side to atmosphere, or from high to low side of system. Pressure range: 90 to 250 lbs.
WRITE FOR CATALOG
HENRY VALVE CO. 1001-19 N SPAULDING AVE CHICAGO ILLINOIS
STOCKED BY LEADING JOBBERS

COMPARE! Gilmer Guarantees You over 41% clear profit on the famous 35-R Assortment of Gilmer Refrigerator Belts

Best-sellers for all the most popular makes. *Gilmer Display Bar (or 25 Gilmer Display Hooks) included with assortment.* Look on Page 4 of new Gilmer Catalog, "America's Belt Bible," for this fast money-maker.
Send TODAY for your FREE COPY.
I. H. GILMER COMPANY, Tacony, Philadelphia


AMINCO THERMOSTATIC EXPANSION VALVE
with moisture-proof element, only $11.00 list.
This splendid valve, manufactured under U. S. Patents Nos. 1,776,401—1,747,958—2,006,663, has removable seats, needles, and power elements. Supplied for SO_2, CH_3Cl, and F12 with 60" capillary tube. Now in the hands of all jobbers.
AMERICAN INJECTOR COMPANY
1481 FOURTEENTH AVENUE, DETROIT, MICH.
Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.

Chieftain Message No. 17
MANUFACTURERS—
You want economy of operation and durability in your product. The answer is the Tecumseh Hermetic.
TECUMSEH PRODUCTS CO., TECUMSEH, MICH.

CLASSIFIED ADVERTISING

RATES: Fifty words or less in 6-point light-face type only, one insertion, $2.00, additional words four cents each. Three consecutive insertions $5.00, additional words ten cents each.

PAYMENT in advance is required for advertising in this column.

REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

POSITIONS AVAILABLE

SERVICE MANAGERS. Several desirable positions are available in the Middle Atlantic states. Applicants must be capable of developing and maintaining an organization to render competent service and sell service, supplies, parts, etc., to users of commercial refrigeration and air conditioning equipment. Give details of experience, present connection, salary expected, when available, etc., in your reply. All replies will be treated in strict confidence. Box 1097, Air Conditioning & Refrigeration News.

POSITIONS WANTED

SALES EXECUTIVE: Thirteen years refrigeration and appliances, retail, wholesale and manufacturing. Conducted own business as sales and advertising counsel. Travelled United States and Canada. Age 34, married, capable, ambitious, persevering, resourceful with initiative. Details and reference or interview upon request. Box 1096, Air Conditioning & Refrigeration News.

REPRESENTATIVES WANTED

LEADING MANUFACTURER of a complete line of fine pianos has an opening for a traveling wholesale representative. Position requires an intelligent, aggressive salesman with proven record in retail or wholesale work. Permanent position with salary and expenses. Substantial opportunity. Reply in confidence with details and photographs. Box 1095, Air Conditioning & Refrigeration News.

REPAIR SERVICE

PRESSURE GAUGES Repaired, all types. Refrigeration, ammonia, steam, hydraulic and air. Prices: 25¢ an inch; example, 2" gauge 50¢, 2½" gauge 65¢, 3" gauge 75¢. Ammonia gauges and gauges exceeding 1,000 pounds 50¢ an inch. NATIONAL ELECTRIC SWITCH CO., 1966 Broadway, New York City.

CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. Any bellows operated device repaired. HALECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

GENERAL ELECTRIC and Westinghouse hermetic units rebuilt. Guaranteed unconditionally for one year and returned to you finished like new. Units are entirely disassembled in our large modern shop, tested through every step of production during rebuilding with the most complete test equipment for accurate work, then subjected to exhaustive running tests under actual operating conditions. Each unit measures to exacting standards after rebuilding. Prices $30.00 on General Electric DR-1, DR-2, and Westinghouse; $35.00 on General Electric DR-3. Quotations furnished on other models. Quick service — guaranteed work. REFRIGERATION MAINTENANCE CORP., 321-27 East Grand Ave., Chicago.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

Camera-ing the Kelvinator Convention and Other Appliance News of the Week

South and Midwest plan mutual progress at Kelvinator's distributor convention in Detroit. Here are Doug Wallace, manager of Graybar Electric, Jacksonville, Fla. (back to camera); W. R. Crosett, comptroller; H. S. Harlow, Graybar, Louisville, Ky.; Carl Haller, Graybar, Cincinnati; and L. A. Pixley, Pixley Electric Supply, Columbus, Ohio.

Canadian Kelvinator men seem pleased with 1939 prospects. Don J. Kelley of Kitchener, Ont. is at far left. The other men are representatives of the distributorship in the London, Ont. territory. With other Kelvinator men, they will share in the benefits of the new National Salesmen's Institute.

Things are looking up in the western and Pacific sections. Left to right around the table at the "silver jubilee" meeting are Miles Ditmer, field sales training supervisor; R. E. Devlin, Fresno, Calif.; J. G. Severtson, Appliance Wholesalers of Oregon, Portland; Graham Polk, district representative; R. F. Meggee, Seattle; Roy Walker, Boise, Idaho; and O. L. Larson, Larson Motor, Denver.

C. W. Hadden, Kelvinator of Canada, Ltd.; Frank Conroy, assistant export manager; and H. S. Turner, director of distribution, start the jubilee year smilingly.

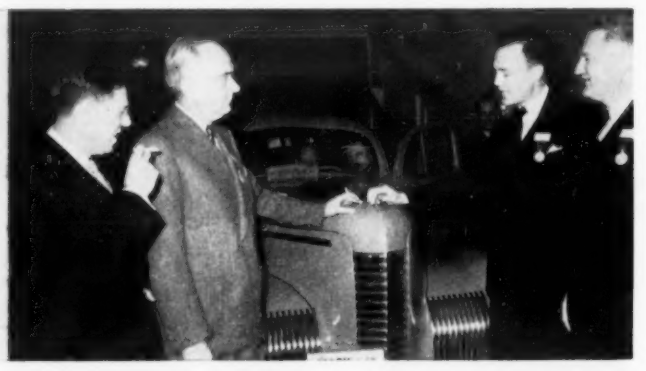
W. A. Blees, general sales manager of the Nash Motors division, gets more of the "appliance angle" of the Nash-Kelvinator picture as seen through the experienced eyes of Ralph Cameron, sales manager, household appliance division, and Hugh Wehrly, assistant to Vice President Burritt.

H. W. Newell, vice president of Geyer, Cornell & Newell gets first-hand electric range promotion ideas from Harry Parsons, range and water heater sales manager.

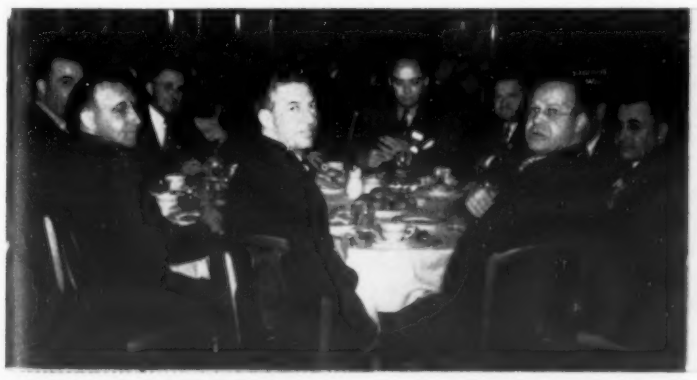
R. W. Poirsons, in charge of washers and ironers, listens as E. A. Seibert, director of service, and George Wagoner, factory utility representative, plot a new course aimed at increasing field efficiency above present high levels.

Ready to tackle 1939 sales problems with the same zest with which they tackle the banquet spread are Lee Flint, distributor from Salt Lake City; C. D. Taylor, commercial division, Detroit; G. P. Egleston of H. R. Basford Co., San Francisco; and Lee Conover, Chicago branch manager.

Two happy people are Dave H. O'Brien of Graybar Electric, New York City, who couldn't wait to express his enthusiasm over Kelvinator's 1939 products, and Vice President H. W. Burritt, who is pleased that his company's plans for next year have the endorsement of the men in the field.



Utility men look over Nash's bid for automobile supremacy in 1939. Left to right: Charles A. Stevens of Appliance Electric & Gas Service Co. of New Jersey; Utility Director Campbell Wood; Don Wright, Public Service Co. of New Jersey; and Roy Holden, Cumberland Light & Power Co., Portland, Me.

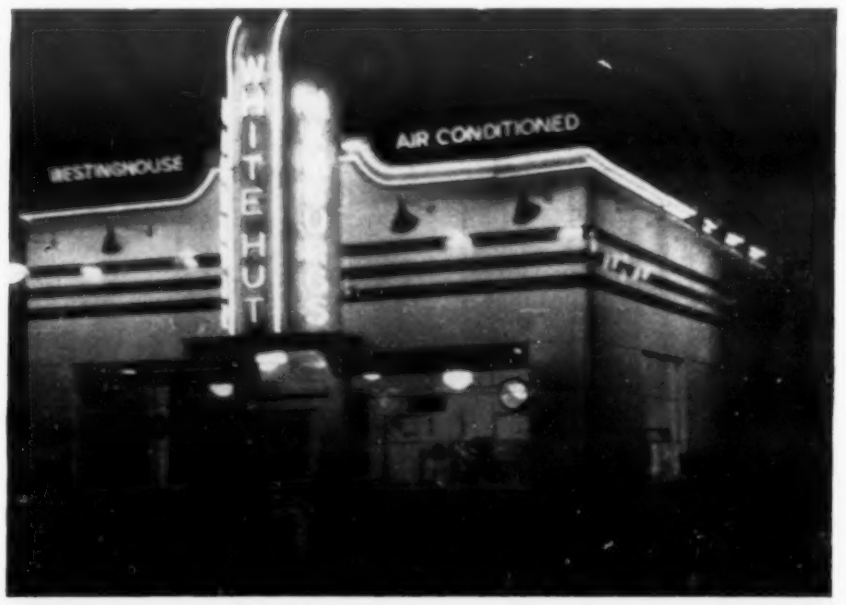


Utility representatives' round-table at the Kelvinator banquet had Ray Morency, Muskegon, Mich.; Garth Warner, Consumers Power Co., Cadillac, Mich.; P. J. Zehnder, Consumers Power, Manistee, Mich.; E. H. Ellis, factory; Campbell Wood, utilities director; Roy Holden, Cumberland County Power & Light; and Walter Draper and Ernest Nelson, Consumers Power, Grand Rapids, Mich.

Kelvinator's National Salesmen's Institute plans advance. Here are Sidney Edlund, institute president; J. Nelson Stuart, director of advertising and sales promotion; and B. B. Geyer, president of Geyer, Cornell & Newell, as they go over the new program.

Eastern distributors make optimistic plans for stabbing a major portion of 1939 business. Left to right: Godfrey Strelinger, assistant to the general sales manager, Nash Motors; Paul Krich, Krich-Radisco, Newark, N. J.; Keith Saunders, New York regional manager; Raymond Rosen, Philadelphia distributor; Al Slap, Philadelphia; Max Krich, Krich-Radisco; W. B. Jones, Rosen's advertising and promotion manager.

Even a severe case of methyl chloride poisoning, built up while he was running some special tests on refrigeration equipment, couldn't quench the salesmanship of "Jerry" Bowen, Dallas, Tex. manufacturers' agent. Brought to Henry Ford hospital, Detroit, for treatment, he spent Thanksgiving Day selling doctors cooling equipment for the new oxygen tent from which he has just been removed. With him here is Mrs. Bowen.



(Above) A $15,000 "sideline" business in electric trains not only helps John Westley, Milwaukee appliance dealer, to fill in the slack sales seasons, but also furnishes him with a wealth of worthwhile prospects for major electrical appliances. One out of every 12 train-buyers becomes an appliance customer, he says.

(Center) Deluxe setting for deluxe hamburgers is this air-conditioned "White Hut" in Toledo, Ohio. Hoffman & Harpst Co., Westinghouse distributor, sold the job.